Wabigoon Forest

Independent Forest Audit

April 1, 2005 – March 31, 2010

ArborVitae Environmental Services

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1. EXECUTIVE SUMMARY

This Independent Forest Audit covers the management of the Wabigoon Forest during the five-year period from April 1, 2005 to March 31, 2010; the Company's actions as well as those of the Ministry of Natural Resources (MNR) are within the audit's scope. The Wabigoon Forest is managed under the authority of Sustainable Forest Licence (SFL) #541593, which is presently held by Domtar. However, Weyerhaeuser held the SFL at the beginning of the audit period until March 2007, when Domtar merged with Weyerhaeuser's fine paper division. The new merged entity retained the Domtar name. The audit period encompasses the last three years of operations conducted under the 2003 – 2023 Forest Management Plan (FMP), the development of the 2008 – 2018 FMP and the first two years of its implementation[1]. The 2010 version of the Independent Forest Audit Process and Protocol (IFAPP), which was prepared by MNR, provided the scope and structure of the audit.

The period covered by this audit was very challenging for both the Company and MNR. The 2008 economic recession, triggered by the collapse of the U.S. housing market and problems in the global financial system, severely impacted the Canadian forest sector. Many Ontario mills closed during this period and some major forest products companies entered receivership. There was a high level of anxiety that Domtar's mill in Dryden might close or be sold. While the mill has continued to operate, the Company did idle the two paper machines at the mill – neither has operated since 2008.

This was the macroeconomic backdrop for the preparation of the 2008 FMP. The Planning Team (PT) for the FMP made some significant improvements over the 2003 FMP, including sharply increasing the projected old growth retention levels. The PT also created a new set of growth and yield curves using the best available information and calculation techniques. However, after the set of curves was completed, the Company members of the PT thought that the new curves underestimated softwood volumes by roughly 15%. The Company reviewed records from actual harvest blocks to support its contention but the PT and regional MNR staff judged the results of the analysis to be inconclusive. As a result, the PT decided not to adjust the new yield curves.

The audit team's analysis indicates that the planned yields from the current forest in the 2008 plan are approximately 15% less than the actual harvest yields obtained during the 2003 FMP period, and almost 25% less than the average yield obtained over the entire 1973-2008 period. However the audit team was not able to find a calculation or methodology error in the yield determination. The audit team is confident there is an issue with the yield projections and concludes that there are two scenarios:

i) The current forest yield curves are inaccurate and underestimate yields by roughly 15% or more; or
ii) The Company has allocated and harvested stands which are better than the average for the Forest instead of cutting stands which are representative of the average conditions in the Forest.

[1] For simplicity, the two plans will be referred to in this report as the 2003 FMP and 2008 FMP.

This situation complicates the determination of whether the long-term management direction (LTMD) espoused in the 2008 FMP is sustainable. The total available harvest is forecast to decrease from 920,000 m^3/yr in the 2008-2018 period to 585,000 m^3/yr by 2028 (a 36% decline), and there is no meaningful recovery over the next 60 years. If the yield curves are correct, then the Company has likely been harvesting better than average stands, an indication that management is geared towards obtaining short-term benefits at the expense of longer term benefits. This situation does not strike the audit team as being consistent with the concept of sustainability. If the yield curves are inaccurate, then the Company will be harvesting more volume in term 1 than they otherwise would but there will also be more volume in the forest than the 2008 FMP forecasts and the future harvest levels will be higher than shown in the plan. While the latter point appears supportive of sustainability, the implication that there is significant accuracy issue in the FMP is not.

A related concern of the audit team is that the Wabigoon Forest is being managed at a level of productivity well below its capacity. The average yield per hectare realized from the Wabigoon Forest between 1973 and 2008 has been 157 m^3/ha, whereas the 2008 FMP projects yields ranging from 108 to 123 m^3/ha over the next 100 years. If the yield curves are reasonable, this characteristic of the 2008 FMP is not auger for sustainability. If the yield curves are deficient, future yields may be approximately 15% higher than forecast and "only" 12-22% less than the long-term actual yields. Again, this "better" sustainability situation is undermined by the presence of yield curve issues.

The audit team also questions the future production level of the Forest because large proportions of the future harvest are scheduled to come from stands aged 40 – 60 years of age. There is little margin for error.

In summary, the audit team considers that plan direction was dominated by the desire to meet a high short-term harvest target at the expense of longer-term benefits and is of the opinion that regardless of whether the yield curves are accurate, the FMP does not provide for sustainable management of the Forest.

During the audit, the Company and some MNR staff pointed out that the Planning Team tested the sustainability of the draft FMP as required by the Forest Management Planning Manual (FMPM). This test consists of assessing whether the implementation of the FMP would meet the FMP objectives and targets. The audit team agrees that the PT applied the test in the manner prescribed in the FMPM. However, because the PT can adjust the objectives and especially the targets during plan development to match what the forest can provide, the FMPM test of sustainability can become a tautological exercise that reduces sustainability to the outcome of a process rather than a condition of the forest. A second implication of this approach is that in effect each PT defines what sustainability means on the Forest. While almost all of the FMPs that the auditors have reviewed over their auditing careers have been sustainable, in this present case, the audit team has concluded that the planning process allowed for the approval of a plan that is either clearly unsustainable (if the yields are correct) or debatably sustainable and unreliable. As a result, the audit team is recommending that Corporate MNR amend the FMPM to add some supplementary guidelines to help planning teams develop a more consistent approach to assessing sustainability across the province.

The development of the 2008 FMP was difficult for a variety of reasons. Not only was there tremendous pressure on the PT to produce a plan that would support either the

continued operation of the mill or its sale, there was considerable turnover of MNR senior staff and the long-time MNR forester was absent for considerable periods due to health reasons. Finally, the amalgamation of the fine paper division of Weyerhaeuser with Domtar during the plan development created operational problems, notably with GIS services.

There were divisions on the PT regarding the appropriate balance of the harvest over time, with the Company and Regional MNR PT members backing a more aggressive harvest and District MNR members split. Although the PT's analysis found that both options produced a roughly equal total volume over the 100 year planning horizon; the debate was divisive, exacerbated by an already strained relationship between the Company and MNR staff. In the end, the Steering Committee endorsed the recommendation made by the Plan Author and the MNR Area Supervisor and selected the LTMD with the higher immediate harvest and lower future harvests.

As the draft plan went through the review process, MNR continued to find errors and deficiencies, especially related to GIS products. A "final" plan that was known to be deficient and contain numerous errors was provided to the public for inspection. Senior District MNR staff verbally agreed to approve the FMP provided that the Company quickly addressed the errors and omissions. It took almost 2 years after plan approval to have an amendment approved to correct a number of the errors, and there are still issues that have not been closed.

Another significant audit finding is that during the 2003 FMP period, the Company did not keep up with its renewal obligations. The audit team has estimated that the Company was about 3,000 ha in arrears during the 2003 FMP period, and it has lagged in the first two years of the 2008 FMP. The shortfall was entirely in planting, which Domtar scaled back as a cost-saving measure. Although the Company is tracking and has a preliminary plan to address the treatment of these areas, it is uncertain whether these areas will meet the planned silvicultural standards and regenerate as projected. The Company also did not fully implement its planned free-to-grow assessment program during the 2003 FMP term, completing surveys on 27% of the forecast area. Part of the underachievement was due to changes in the timing of assessments and part was an effort to reduce costs.

This audit found that the results of the operations that the Company did carry out were adequate. Utilization and block layout were good and roads and water crossings were well-maintained. Some instances of site damage were observed in the field (Recommendation #11) and the Company was fairly consistent in leaving too few residual trees on site, especially too few large conifers (Recommendation #10). The audit team observed many areas where poor performance was tied to the poor relationship between the Company and MNR, including preparation of the Annual Reports (Recommendation #22), assessments of compliance in the field (Recommendations #17 & #18), Company participation on the LCAC (Recommendation #1), and most notably a host of issues associated with the development and approval of the 2008 FMP (Recommendation #7).

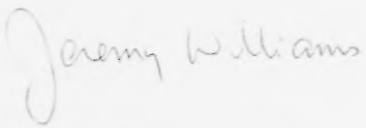
Finally, in addition to the foregoing, this audit found significant violations of the SFL conditions and a violation of the CFSA. The most significant was the Company's refusal to abide by wood supply commitment conditions #2 and #3 in Appendix E of the SFL – the Company told the commitment holder that Domtar needed the wood itself. While

Domtar suggested other sources of wood and an alternate arrangement was undertaken to provide wood from the Lake Nipigon Forest, AbitibiBowater (the commitment holder) did not renew the arrangement for a second year because the quantity of wood supplied was well below expectations. The following year Domtar sold its Red Rock mill and so lost access to the wood from the Lake Nipigon Forest.

The Company also violated Paragraph 29 of the Crown Forest Sustainability Act by cutting more than the available area of the pure jack pine forest unit during the 2003 FMP term, although this additional harvest was approved by MNR as part of an amendment. The Company is also out of compliance with section 5, Paragraph 26 of the CFSA and section 4.1 of its SFL since four of the five Annual Reports due during the audit period have not been accepted by MNR, which is waiting for the Company to fully address the comments it has made on the draft versions.

In total, there are 25 recommendations issued in this audit, many of them regarding serious issues, plus the recommendation on licence extension. As a result of these findings, the audit team concludes that management of the Wabigoon Forest was not in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was not managed in compliance with the terms of the SFL. Forest sustainability is not being achieved as assessed through the IFAPP. Therefore, the audit team recommends the Minister not extend the term of the Sustainable Forest Licence #541593 for a further five years. The most important reasons for this conclusion and recommendation are:

- By 2028, the 2008 FMP projects a harvest volume 36% below the 2008 level, and most importantly, there is no meaningful recovery by 2108;
- The yield forecasts in the FMP are deficient, either because they are based on erroneous yield curves or because the Company has been harvesting better than average stands;
- During the term of the 2003 Forest Management Plan (FMP), the Company's renewal efforts did not match relevant harvest levels, with the majority of the 3000 ha shortfall coming in artificial renewal;
- The Company was out of compliance with Conditions #2 and #3 of Appendix E of its SFL #541593 (and also out of compliance with Conditions #2 and #4 of Appendix E of the Trout Lake SFL #542461); and
- The 2008 FMP was approved even though it was known to be deficient and contain numerous errors.



Jeremy Williams,
Lead Auditor

2. TABLE OF AUDIT FINDINGS

Recommendation on Licence Extension
The audit team concludes that management of the Wabigoon Forest was not in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was not managed in compliance with the terms of the Sustainable Forest Licence held by Domtar. Forest sustainability is not being achieved as assessed through the Independent Forest Audit Process and Protocol. Therefore, the audit team recommends the Minister not extend the term of the Sustainable Forest Licence #541593 for a further five years. The most important reasons for this conclusion and recommendation are: • During the term of the 2003 FMP, the Company's renewal efforts did not match relevant harvest levels, with the majority of the 3,000 ha shortfall coming in artificial renewal; • The yield forecasts in the FMP are deficient, either because they are based on erroneous yield curves or because the Company has been harvesting better than average stands; • By 2028, the 2008 FMP projects a harvest volume 36% below the 2008 level, and the future low level persists for 50 or 60 years; • The Company was out of compliance with Conditions #2 and #3 of Appendix E of its SFL #541593 (and also out of compliance with Conditions #2 and #4 of Appendix E of the Trout Lake SFL #542461); and • The 2008 FMP was approved even though it was known to be deficient and contain numerous errors.
Recommendations Directed to the SFL Holder/MNR District(s)
1. Dryden District MNR shall invite the Company to be a regular participant at LCAC meetings.
2. Dryden District MNR shall ensure that Aboriginal Liaison duties are fulfilled to facilitate the improvement of relationships with First Nations.
3. Domtar and Dryden District MNR shall review the yield curves that were developed for the 2008 FMP at the mid-term FMP review (i.e., in 2011) and determine if the actual harvest yields continue to exceed the forecast yields. Based on the outcome of the review, MNR and the Company shall take any appropriate actions.
4. Domtar and Dryden District MNR shall jointly monitor the results of low-density planting and aerial seeding treatments that are intended to lead to intensively managed stands and report the results separately in future Annual Reports, starting with the 2012-13 AR. Should the evidence indicate that the treatment strategies are not successful in meeting the silvicultural standards or producing the anticipated growth and yield results, the Company will modify the SGRs and their use of these strategies.
5. Domtar, in collaboration with Dryden District MNR, shall revise the fish habitat and water quality AOCs, for the second five-year term of the FMP, to facilitate harvesting in riparian areas, where appropriate, and following the standards and guidelines of the Stand and Site Guide.
7. MNR District Managers shall not recommend approval of FMP's with unresolved required alterations and/or other deficiencies and Regional MNR shall not approve such FMPs. Formal approval shall only be given once all required alterations have been addressed, and the certification page shall include certification that the FMP is complete and accurate.
8. The plan author will prepare or supervise the preparation of all Annual Work Schedules and certify each of them, and prepare and certify all amendments to the FMP.
10. Domtar shall take the necessary steps to bring its harvesting operations into compliance with the residual retention requirements, and MNR shall closely monitor the Company's performance and impose monetary and other penalties for non-compliances encountered after April 1, 2012.

11. Domtar shall take necessary steps to ensure that operations on the Forest do not cause site damage.
12. Domtar shall improve the management of chipper piles to reduce the amount of productive area on which renewal is delayed by the presence of the piles.
13. Domtar shall rectify the condition of the chipper pad on the camp owner's patent land area and ensure that it replants the relevant areas of the property.
14. Domtar shall ensure that all of the area harvested during the 2003 FMP period, plus any backlog of area requiring renewal which was carried over from prior FMP terms, receives appropriate regeneration treatments by December 31, 2014.
15. Domtar shall review its spacing program to assess whether an adequate amount of area is being treated to meet the 2008 FMP objectives, and depending on the results of this analysis, shall alter the area being treated with PCT or equivalent treatments, as necessary.
16. Domtar shall increase its staff complement on the Wabigoon Forest.
17. Dryden District MNR shall find avenues for sufficiently increasing its compliance monitoring effort in order to meet its annual targets and shall take immediate steps to follow-up with Domtar and take appropriate cooperative actions to close all outstanding compliance issues and tasks.
18. Domtar and Dryden District MNR shall work jointly to ensure that compliance inspectors improve their recognition of site damage and other compliance infractions.
19. Domtar shall develop a tracking system to ensure that all operations are inspected for compliance, in accordance with requirements of *The 2010 Forest Compliance Handbook* and Domtar's Ten-Year Strategic Compliance Plan.
20. Domtar shall ensure that all compliance reports and required notifications are submitted within the timeframes prescribed in the Forest Information Manual and MNR policies.
21. Dryden District MNR and Domtar, with MNDM&F, shall check the records associated with the harvest volume and area in the 2007/08 fiscal year to confirm that the reported amounts are accurate or else provide a revision.
22. Domtar and Dryden District MNR shall work together to finalize the 2008/09 and 2009/10 Annual Reports so that they can be accepted by MNR.
23. Domtar shall immediately discuss with AbiBow how Domtar can become compliant with all current commitments in its Wabigoon and Trout Lake SFLs to supply AbiBow with conifer timber and MNR shall invite the Ministry of Northern Development, Mines and Resources to work with both Companies to find a long-term solution that better serves both.
24. Domtar and Dryden District MNR shall amend the FMP to reduce the planned harvest of the PJP Forest Unit during the 2008 FMP term by an amount appropriate to compensate for the harvest during the 2003 FMP term that was 122 ha above the Allowable Harvest Area.
25. Domtar shall immediately review the Forest Renewal Trust accounts for both the Trout Lake and Wabigoon Forests and correct any errors in expense allocations between the two Forests. Within one year, Domtar shall develop and implement an appropriate quality control process for Forest Renewal Trust accounting of the Wabigoon Forest.
Recommendations Directed to Corporate MNR
6. Corporate MNR shall augment the methodology provided in the FMPM for assessing the sustainability of a forest management plan to make it more robust.
9. Corporate MNR shall ensure that the publicly available documentation associated with plan amendments includes a copy of the amendment approval page with all approving signatures & showing the approval date.

3. INTRODUCTION

This chapter provides context for the Independent Forest Audit (IFA), both in relation to the audit basis and process and in relation to the Wabigoon Forest. Section 3.1 provides a high-level description of the audit scope, process, and input received – a more detailed description can be found in Appendix 4. The key characteristics of the Wabigoon Forest and some key issues that have created challenges in past audits and plan periods are identified in sections 3.2 and 3.3, respectively. These issues were among those that merited special attention during the audit. The chapter concludes with a summary of input received into the audit.

3.1 AUDIT PROCESS

The Crown Forest Sustainability Act (CFSA), and one of its Regulations (160/04), directs the Minister of Natural Resources to conduct a review of each of the province's managed forests every five years to ensure that the licensee has complied with the terms and conditions of the Crown Forest Sustainability Act, its Sustainable Forest Licence (SFL), its forest management plan and other regulatory requirements. The effectiveness of operations in meeting plan objectives, improvements made as a result of prior IFA results, are also to be assessed. The Independent Forest Audit Process and Protocol (IFAPP) also requires the audit team to provide a determination regarding the sustainability of forest management and whether the term of the SFL should be extended (the Regulation also includes the latter requirement). A detailed description of the scope and process of an IFA is set out in the IFAPP, which contains some 150 audit procedures and is available on the Ministry of Natural Resources (MNR) website. A more detailed description of the approach and sampling methodology used in this audit can be found in Appendix 4.

This IFA covers the five-year period from April 1, 2005 to March 31, 2010. The audit period encompasses the last three years of operations conducted under the 2003 – 2023 Forest Management Plan (FMP), the development of the 2008 – 2018 FMP and the first two years of its implementation[2]. The Wabigoon Forest is managed under the authority of SFL #541593, which is presently held by Domtar. However, Weyerhaeuser held the SFL at the beginning of the audit period until March 2007, when Domtar merged with Weyerhaeuser's fine paper division, with the new company being named Domtar.

An important note about context of the IFAs is that they review the performance of both the SFL-holder and the MNR. In other words, the accomplishments of both parties with responsibilities related to forest management are covered by the audit. ArborVitae Environmental Services Ltd. (AVES) undertook this IFA using a five-person team. Profiles of the team members, their qualifications and responsibilities, are provided in Appendix 6.

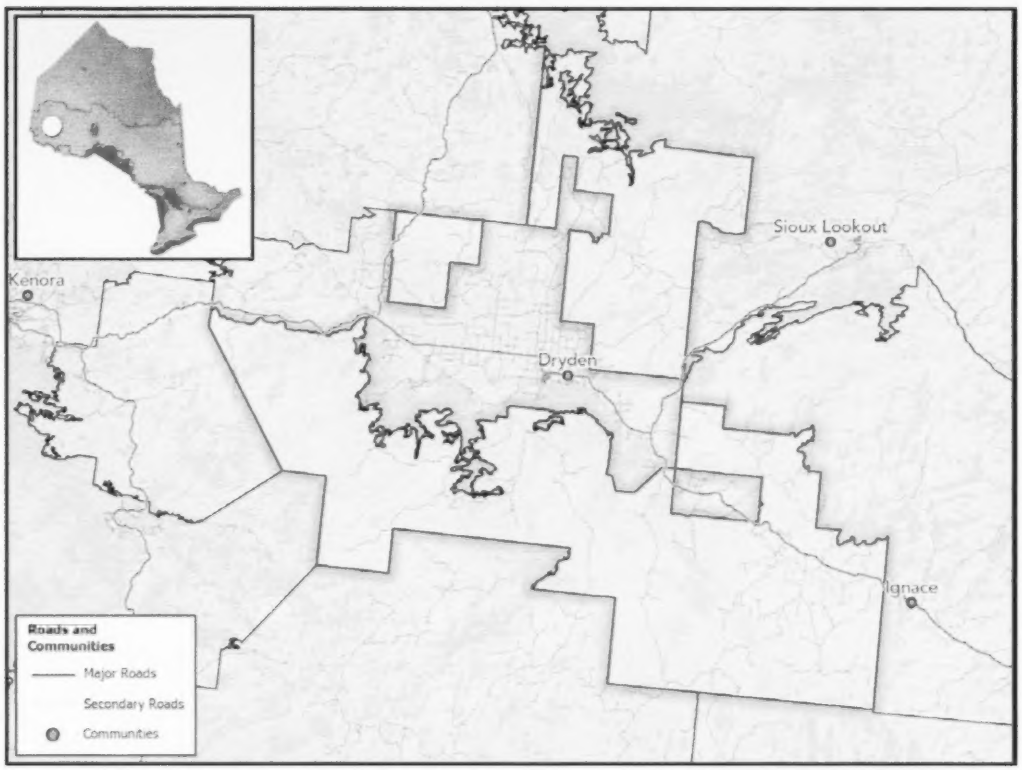
3.2 MANAGEMENT UNIT DESCRIPTION

The Wabigoon Forest is located in northwestern Ontario (Figure 1). The Forest consists of three discrete blocks of land, with the community of Dryden (population approx. 8,200) being located centrally. The main east-west road through the Forest is Highway 17,

[2] For simplicity, the two plans will be referred to in this report as the 2003 FMP and 2008 FMP.

while route 72 heads northeast to Sioux Lookout and route 502 heads south to Fort Frances. Dryden is the largest local community in the vicinity of the Forest, others of note include Wabigoon, Dinorwic and Ignace (to the east along Hwy 17), and Eagle River and Vermillion Bay to the west.

The Dryden area was opened up by the construction of the Canadian Pacific Railway, which was completed between Fort William and Winnipeg in 1883. Sawmills had sprung up where the rail line crossed major rivers and ran adjacent to large lakes, and Ignace, Dinorwic, Eagle River, and Vermillion Bay were initially built around tie and lumber mills. Unlike most of the communities in northwestern Ontario, Dryden was founded as an agricultural community in 1895. The Dryden pulp mill was the first Ontario pulp mill constructed west of Sault Ste. Marie, it began operations in 1913, producing 40 tons per day of sulphate pulp, largely from jack pine cut on land being cleared by settlers.



Management Unit: Wabigoon Forest - 130

Figure 1. Overview map of Wabigoon Forest, with provincial location inset.

The Forest resides within the Treaty No. 3 area. While there are no Aboriginal communities within the Wabigoon Forest itself, five First Nations have interests in the Forest: Wabigoon Lake Ojibway Nation, Eagle Lake First Nation, Lac Seul First Nation, Wabauskang First Nation, and Naotkamegwanning First Nation.

The Forest lies entirely within the MNR Dryden District, within the Northwest MNR Region. The Forest is mid-sized in comparison to other Ontario forests, encompassing

7,327 km^2, of which approximately 6,811 km^2 is Crown Managed Forest. Of this amount, 5,300 km^2 are classed as productive forest. The Forest consists of three discrete blocks (Figure 1); the smallest of which was added to the unit in the late 1960's (i.e. the Colenso block located northwest of Dryden). The other two blocks have historically been associated with the pulp mill.

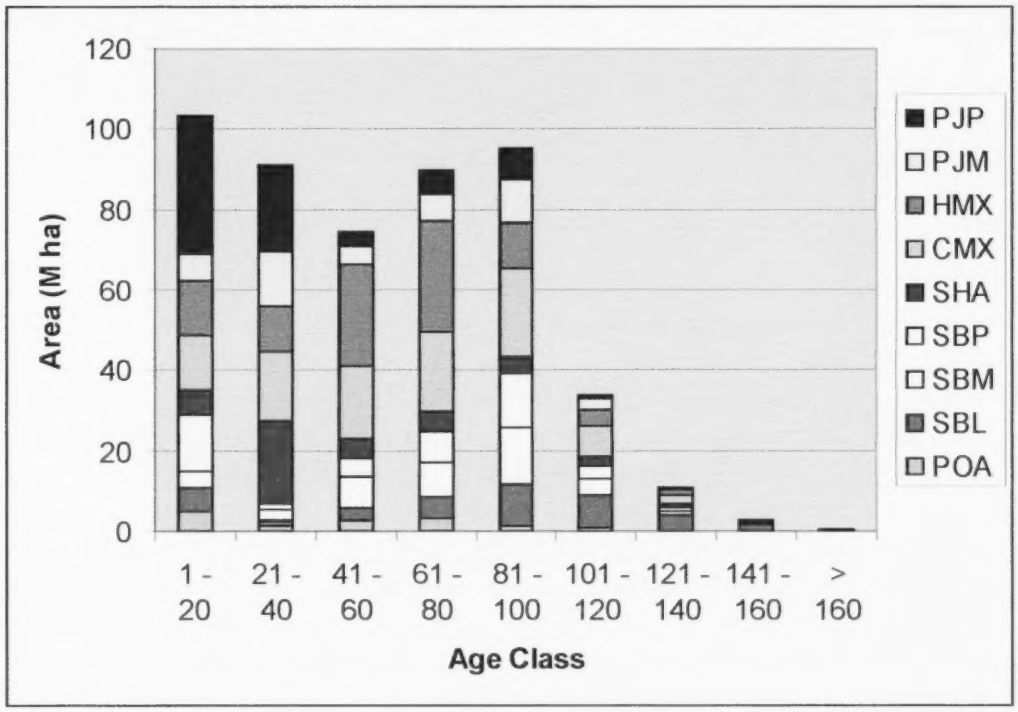


Figure 2. Area (M ha) x age class x forest unit of the Crown production part of the Forest[3]. (Source 2008 FMP)

The Wabigoon Forest is located on the Canadian Shield in the Boreal West ecoregion; soils tend to be shallow and coarse. The soils in the northern block are mainly sandy and jack pine dominates in that part of the Forest. The Colenso block is the most uniformly productive of the three blocks, with deeper silt and clay-based soils, although similar sites are found within the other two blocks. The western and southwestern parts of the Forest have the shallowest soils, on average.

The Forest tends to be rather young, as can be seen from Figure 2, which shows the area by age class for the most important forest units. Twenty percent of the forest is less than 20 years old and fully 90% is less than 100 years of age. Unlike many Ontario forests, there is no pronounced area gap in the 41-60 year age class, reflecting a large 160,000 ha fire in 1961. A 30,000 hectare fire in 1974 contributed area to the 21-40 year age class. The 2008 FMP states that most of the forest originated after a burn in 1883, but there were major fires in the 1890's, 1910, 1925, and the 1930's. The unit was cut largely on an oldest first basis and harvesting in the area has been conducted more or

[3] The forest units are: POA – Poplar All, SBL – Black Spruce Lowland, SBM – Black Spruce Mix, SBP – Black Spruce Productive, SHA – Shallow Soils All, CMX – Conifer Mixedwood, HMX – Hardwood Mixedwood, PJM – Jack Pine Mixedwood, and PJP – Jack Pine Productive.

less continuously since the Canadian Pacific Railway was built in the early 1880's. This accounts for relative lack of area older than 100 years.

The global recession of 2008-10, which has proven to be especially severe and long-lasting in the United States, curtailed roughly half of the harvesting in Ontario during 2009 and 2010. The Dryden mill did not escape the impacts of the downturn. The most significant impact has been that the two paper machines which were part of the mill complex operated intermittently during the 2006-08 period before being idled in 2008. As of the time of writing, the machines remain inactive. The loss of the paper production capacity led the mill to convert to the use of 100% conifer furnish as of January /February 2009, contributing to the regional loss of hardwood markets.

In addition to timber, the Wabigoon Forest provides a wide array of recreational and tourism-related activities. Hunting, fishing and snowmobiling are very popular among local residents and tourists. Fifty-six licensed commercial tourism operators have an interest in the Forest, mainly on Eagle Lake and Wabigoon Lake. The 2008 FMP reports that there are more than 1000 km of trails in the Forest, including more than 300 km of groomed snowmobile trails. There are 55 traplines fully or partially within the Forest.

The Forest has the typical array of boreal wildlife species, including moose, bear, wolves, lynx, marten and a wide variety of songbirds. The Wabigoon Forest is south of the present range of the woodland caribou, however there are numerous bald eagles, beaver, and other wildlife that impact forest management in a variety of ways. The FMP provides more detailed information regarding the species of interest on the Forest.

3.3 Current Issues

The audit team encountered a number of issues on this audit that proved to be challenging to grapple with, in part because many of them were inter-related. Foremost was concern regarding the sustainability of the management conducted during the audit period and envisaged in the 2008 FMP.

Insufficient Renewal and Spacing Undertaken

The Company reduced its artificial renewal effort during the audit period, in part to cope with the economic downturn that occurred. Similarly, the amount of pre-commercial thinning undertaken was 44% of planned levels during the term of the 2003 FMP, and it fell off significantly during 2006/07 and 2007/08. The amount of the artificial renewal shortfall was approximately 3,000 ha, or about 13% of the total planned level of artificial renewal. On any forest, these shortfalls would be a serious concern, however on the Wabigoon Forest they are much more serious because the future harvest levels are highly dependent on considerable areas of forest being harvested shortly after reaching operability.

Sustainability of Projected Harvest

The planned harvest volume identified in the 2008 FMP drops from an initial level of 920,000 m^3/yr to 585,000 m^3/yr by 2028 (a 36% decline) and it is projected to have no meaningful recovery by 2108, the end of the forecast horizon. This is similar to the harvest pattern planned in the 2003 FMP, but in that plan the long-term harvest level was 710,000 m^3/yr. The harvest strategy in the 2008 FMP increased the emphasis on short-term volumes and the Local Citizens Advisory Committee (LCAC) described the selected management direction as one that put current industrial needs ahead of future

wood supply. There was virtually no ecological rationale for this high initial harvest provided in the FMP. While the Planning Team did review another option with a somewhat lower initial harvest and a similar long term average harvest volume (which was favoured by some Planning team members and also by the LCAC), the audit team contends that a wider range of options should have been considered. The aggressive harvest profile basically forces the future harvest to consist of a high proportion of stands harvested at young ages, which have considerably lower yields per hectare than do stands harvested at maturity. Management of the Forest is foregoing considerable future volume under the planned long-term management direction, which led the audit team to have serious concerns regarding the sustainability of the projected harvest and the manner in which sustainability is assessed in the FMP development process.

Yield Curves

The Planning Team, with the agreement and assistance of MNR Regional staff and Northwest Ontario Science and Tech staff, hired an external expert to revise the yield curves for the 2008 FMP. The motivation for this revision was a desire to base the yields on the most recent science, although it should be noted that no concern was raised that the 2003 curves were inaccurate. The Company's review of the yield curves indicated that the predicted present forest softwood volumes were underestimated by an average of approximately 15%. Company staff attempted to support their contention using actual harvest data from the Forest, however the Planning Team and the Regional MNR and Science and Tech staff felt that the data underlying the Company's analysis was limited and insufficient to adequately address the issue, and so decided against revising the curves. The audit team believes that the yield and volume forecasts in the 2008 FMP are indeed unreliable and this has contributed to the complex situation regarding sustainability of the Forest.

Significant Changes in Management of the Forest and Premature FMP Approval

The audit period encompassed a time of severe economic duress, during which period numerous mills in Ontario closed and several high profile companies sought protection under the Companies' Creditors Arrangement Act (CCAA). There was a great deal of anxiety that the Dryden mill might close or be sold. One of the facility's paper machines was idled in late 2006 and the second has not been run since 2008. The ownership of the mill was transferred from Weyerhaeuser to Domtar as the paper division of Weyerhaeuser was merged with Domtar, and this created disruptions, most notably in the loss of GIS capacity. The Company Woodlands section also experienced staff reductions.

There was also a great deal of turnover in the MNR District office at Dryden during the audit term, with the District Manager (DM) and Wabigoon Area Supervisor (AS) positions each being backfilled by two different people, for a total of three people in the DM position and four in the AS position (three people served as AS during planning), including the original incumbents. This lack of stability contributed to the challenges encountered in producing and approving the 2008 FMP.

Rapport Between the Company and MNR

During the course of the audit it became apparent to the audit team that the relationship between the Ministry and the Company is not healthy, with discord going considerably beyond the natural tensions which sometimes exist between government and industry staff. The challenges of managing a public forest area are being exacerbated by the strained relationship. Although the impaired rapport is recognized by both the MNR and

Company, there is no strong indication that the situation is close to resolution. The energies that staff consume in dealing with the poor rapport would undoubtedly be better spent in more productive aspects of managing the Forest.

3.4 Summary of Consultation and Input to Audit

The audit team solicited comments and opinions from the public, stakeholders, and Aboriginal communities using a combination of mail outs to individuals and organizations on the Dryden MNR District mailing list, and newspaper notices. Local Citizens Committee (LCC) members were also asked to solicit comments from other Forest stakeholders. During the audit, the consultation auditor and other audit team members spoke with roughly half of the people who were members of the LCC during the audit period (some are no longer LCC members). A wide range of issues were raised in these discussions, which are reviewed in more detail in Appendix 4.

The consultation auditor met with representatives from Lac Seul First Nation and Wabigoon Lake First Nation. Both representatives felt that communication with the Company is good. They also noted that their rapport with the MNR is limited. This issue is discussed in more detail in Section 4.2.

4. Audit Findings

4.1 Commitment

Because the Wabigoon Forest has been certified to the Forest Stewardship Council national boreal standard and the Canadian Standards Association forest management standard Z808/809, the IFAPP permits the audit team to pass over the assessment of the commitment principle.

4.2 Public Consultation and Aboriginal Involvement

The Wabigoon Forest LCC is known as the Local Citizens Advisory Committee (LCAC). It updated its terms of reference (ToR) in July 2009. The ToRs are very detailed, providing direction regarding the role and purpose of the LCAC, their participation in the Planning Team, appointments and general procedural mechanisms. LCAC membership is not organized according to sectoral representation (i.e., naturalists, rod and gun clubs, cottagers, etc.) – instead members are recruited based on their level of interest and the experience they bring to the table. The range of perspectives is tracked in a profile chart of existing members that is contained as an appendix to the ToRs. In this way, there is a good sense of the values represented in the LCC and potential gaps. The Audit Team reviewed the membership chart as of September 2010 and noted some weakness in the representation of mining and ecological interests and values. Some LCAC members also felt that there is not sufficient diversity in the membership. While efforts in recruiting new members are ongoing, the audit team encourages MNR to make further efforts to find representation of these values.

Another important gap in the LCAC is that Domtar rarely participates in meetings. On many forests in Ontario, staff of the SFL-holder company are LCC members, as the FMPM allows. However staff may instead attend as observers if they are not members – in either case, SFL-holder companies almost always have someone in attendance at

every LCC meeting. In a reflection of the relationship issues between Domtar and MNR, Domtar feels it is rarely invited and at the time of the audit they had not recently attended an LCAC meeting. As a result, there have been few opportunities for Domtar to establish and build relationships with the LCAC, and no opportunity to be proactive in addressing issues of concern to them. Domtar's regular participation in the LCAC would be very beneficial for all involved. Domtar would be able to learn about LCAC concerns early enough to justify its decisions and/or address the concern to the satisfaction of members. During the interviews, some LCAC members commented that Domtar does not seem to be very involved and seems to operate behind the scenes, and that the Company is more active during the planning process. The audit team believes that this concern over Domtar's apparent lack of involvement is the result of Domtar not having a regular presence in the LCAC. Based on its experience, the audit team believes that Domtar's involvement in LCAC meetings would contribute to better relationships and better understanding of the issues for all involved. Recommendation #1 addresses this issue.

In terms of its activities, the LCAC meets regularly approximately 9 times a year, and more often during periods of peak forest management planning activity. Most of the LCAC members interviewed by the audit team felt that the committee received very good support from MNR in terms of getting information needed to make informed recommendations (for example, every fall, field trips are organized to view different aspects of forest operations). The audit team agrees with this assessment.

The LCAC is concerned with the direction of forest management in general and on the Wabigoon Forest in particular. Some LCAC members were uneasy with the direction taken in the 2008 FMP and felt that keeping the mill running took priority over the sustainability of the Forest, which led to tensions within the LCAC during the planning process. The LCAC statement in the FMP expresses serious concern over the large increase in the AHA compared to previous plans and the forecast of a 36% drop in wood supply over the next 20 years. In the end, the LCAC endorsed the plan because most members felt there were sufficient avenues available to address their concerns, however their statement in the FMP contains ten points of concern and several recommendations all related to aspects of sustainability.

The five First Nations communities with an interest in the Wabigoon Forest were contacted prior to the audit and the audit team met with representatives from two First Nations - Lac Seul and Wabigoon Lake. The audit team also reviewed all related records and found that communications were well documented. All notifications related to planning were in place and prepared according to the FMPM timelines. MNR invited all Aboriginal communities to designate a representative for the 2008 planning team. All communities did so, but participation was uneven. In an effort to assist their participation, MNR met regularly with the community representatives after planning team meetings.

It should be noted that the Naotkamegwanning First Nation's representative wrote a letter expressing strong frustration with the planning process, the resources provided to produce the Aboriginal values and background reports, and the opportunities for meaningful involvement. The community stopped participating and in the end, requested an Individual Environmental Assessment, which was denied. While the two First Nations interviewed acknowledge that some issues transcend the FMP, they also feel that the FMP should more fully accommodate their concerns and values. These

frustrations remained despite the additional time spent by MNR staff trying to enhance the First Nations' ability to engage in forest planning. Overall, communication and collaboration between the MNR and affected First Nations is poor, and Recommendation #2 has been developed to improve the situation.

Relations with the Company are somewhat better than with MNR. The Company has signed a protocol with one First Nation to support the First Nation's participation in the FMP, training, education, and employment. The Company also signed a Memorandum of Understanding with a second First Nation. Domtar has several notable economic relationships with First Nations, among them an arrangement to obtain almost 3 million young trees for planting from the Wabigoon Anishinaabe Gitigewin Corp. (associated with Wabigoon Lake Ojibway Nation). Significant harvest operations were conducted during the audit period on the Wabigoon Forest by Noopaming Anokeewin Inc., a harvesting business owned by a local entrepreneur from Wabigoon Lake Ojibway Nation., and Eagle Lake First Nation. During the audit period, 76,361 m^3 were harvested by these operations. During this same period, Noopaming also conducted significant harvest operations on adjacent Forests, and delivered the wood to the Dryden mill.

4.3 Forest Management Planning

4.3.1 Development of the 2008 FMP

The Planning Team (PT) for the Wabigoon Forest 2008 FMP was comprised of up to 18 individuals who were appointed by the MNR Dryden District Manager. PT members were individuals with expertise in forest management, forest operations, silviculture, GIS, biology, and Aboriginal issues. The levels of experience of the various members was diverse; individuals ranged from being relatively fresh to well-seasoned veterans. The PT Terms of Reference (ToR) identified that the staffing and knowledge level of MNR Wabigoon Area staff would be a plan production issue as five of the permanent positions were being filled by staff on an acting or temporary basis. However, the composition of the planning team, along with the support teams, had sufficient qualified professionals and knowledgeable experts to meet the requirements of the 2004 FMPM.

Some PT members suggested that the relatively large size of the Team posed challenges in terms of efficiency and reaching consensus over difficult issues. While the Team may have been overly large, team size was not a factor in the disputes that arose during the planning process.

The Planning ToR called for the PT to be co-chaired by two Domtar staff, the Plan Author and Domtar's (Wabigoon) Team Leader. This is unusual in that an MNR District staff member is often one of the two co-chairs, however both MNR and the Company supported this decision. The LCAC representative was actively involved on the Planning Team. As noted above, five PT positions were also made available to the five First Nations that are affected by forest management on the Wabigoon Forest. Representatives from all five First Nations chose to become involved in the PT mid-way through the planning process, resulting in extra effort being required on the part of MNR staff to update and bring the representatives up to speed on the FMP planning process and specific developments to date.

Interviews with key PT members and reviews of the documentation (PT minutes, 2008 FMP document and associated supplementary documentation, correspondence)

determined that the PT was provided with sufficient background material to fulfill its roles. The PT held 20 meetings over the course of the planning process (October 2005 – March 2008), meeting on nearly a monthly basis up to June 21, 2007. Attendance by core PT members was generally good, although attendance by other members was inconsistent. Attendance by the First Nation representatives varied considerably. MNR staff made the comment that they actively sought Aboriginal participation but did not have an approach for maintaining their incentive to participate. Lack of attendance on the part of the First Nations could also be partially attributed to dissatisfaction with the forest management planning process. MNR sent copies of the Planning Team minutes to each of the First Nations, whether or not their representatives attended the PT meetings.

The ToR established a FMP Steering Committee made up of senior MNR and Company personnel. Its primary function was to provide direction regarding issues that the PT was unable to resolve. The Steering Committee was convened on at least six occasions; four times to review planning progress and twice to render decisions on matters that were unresolved within the Planning Team. This degree of reliance on the Steering Committee for assistance was relatively heavy in the auditors' experience. The auditors do not view the Steering Committee as having been especially effective in providing direction to the Planning Team on significant issues, which may be due in part to discontinuity caused by the high level of turnover among the Committee members. The Steering Committee largely relied on the joint recommendations of the plan author and MNR Area Supervisor for resolving the disputed issues. However, because the MNR Area Supervisor position had three people in it from the beginning of planning until November 2006 (when the Wabigoon Area Position was eliminated and the Dryden Area Supervisor assumed Area Supervisor duties for the Wabigoon Forest), two later Area Supervisors would have lacked context and knowledge of the forest and the stakeholders to be as effective as the plan author. Thus, in the view of the audit team, the plan author effectively had greater sway than the MNR Area Supervisor during the more difficult stages of the planning process.

The early part of the planning process went fairly smoothly. The meeting minutes and discussion with the LCAC members confirmed that the LCAC was very involved with establishing the desired forest and benefits target levels, and provided useful comments and direction to the PT.

However, the anxiety caused by the spectre of the Dryden mill closure put a great deal of pressure on both Company and MNR members. In the view of the audit team (also supported by the LCAC concerns listed in its statement endorsing the plan), the Company's primary focus was ensuring that the plan supported the continued operation (or sale) of the mill, which entailed that wood cost reduction[4] and short term supply enhancement were top priorities. This drew the Company into conflict with MNR, and planning process became difficult, exacerbated by the previous strained relations between many of the individuals in the two organizations. As one planning team member expressed it, "At many times, the MNR and Company Planning Team members were at odds with one another, which caused tension. Too often issues that should

[4] The LCAC statement in Supplementary Document #15 observes that "Concerns regarding a shortage of wood supply from the Wabigoon Forest had to be addressed by the planning team. While this shortage could be addressed by purchasing wood off neighbouring SFL's ... Weyerhaeuser foresters explained that they needed the volume off the Wabigoon Forest in order to lower costs."

have been resolved by professionals at the Planning Team were elevated to the Steering Committee. The Planning Team environment did not provide a sense of an open, sharing atmosphere with members working towards a common goal." Meeting the planning schedule also seemed to become a high priority, especially as there were no contingency plans evident to keep operations going after April 1 2008 should the approval of the plan have been delayed.

Scoping analyses were conducted to investigate the Wabigoon Forest's ability to supply timber, wildlife habitat and old growth forest conditions through time. This analysis, which is part of the standard forest management planning process, provided insight into what the Forest is capable of producing and assessed the short-term (next 10 years), medium-term (20 years), and long-term (100 years) impacts of potential management decisions rendered in this management plan. The scoping analysis is intended to lead the PT to select an appropriate long-term management direction (LTMD) for the FMP. Two issues emerged from the scoping investigations: (1) volume projections were lower than calculated in previous plans, and (2) determining an appropriate balance of Term 1 wood supply versus long-term sustainable volume levels. There were sharp differences of opinion among planning team members with regard to the second issue, which was accentuated by the new yield curves. Choosing an appropriate harvest profile became a flashpoint throughout the remainder of the planning process.

The issue first caused a deadlock at the PT during June /July 2006, when two potential LTMD options were developed. The key difference between the two options was the amount of harvesting in the first term. The option with the higher harvest in the initial ten years included a 36% decline in total volume by 2028 and little recovery thereafter. The second option, developed by the District MNR, had a 20% lower harvest in the first term and a long term harvest that was roughly 5% greater than in the competing option. The average harvest over the full planning horizon was almost equal under the two scenarios and the impacts on non-timber values were very similar. Both runs were considered by the PT to be sustainable. MNR regional advisors and Company staff supported the option with the higher immediate harvest while the District MNR staff on the planning team were split. The differences of opinion were strong, and this situation was mirrored on the LCAC. Because the PT could not agree on the appropriate Term 1 harvest, the issue was referred to the Steering Committee. The Steering Committee reviewed the options and the District Manager, a member of the Steering Committee, requested additional scoping. The additional scoping did not seem to add insight and the PT remained unable to reach a decision. The issue was again referred to the Steering Committee. This time, the Steering Committee accepted the joint recommendation of the plan author and the MNR Area Supervisor, and endorsed an LTMD based on a higher short-term harvest.[5]

In addition to the choice of harvest profile, the development of new yield curves was also challenging, in part because of the impact of the yields on the harvest profile.

Yield curve development received considerable attention and analysis. With the support of the Regional MNR and the Planning Team, Domtar retained the services of a growth and yield expert to design new yield curves based on current science and the best information available through MNR's Northwest Region. The initiative was laudable, although it is important to point out that there had not been any concerns raised with the

[5] See pages 77-78 of Supplementary Documentation #3 for more detail.

curves used in the 2003 FMP. The rationale and background information used in the design of the new yield curves are thoroughly documented in the FMP Analysis Package. At the conclusion of this exercise, Domtar staff believed that the resulting yield curves had overly reduced the softwood volumes/hectare by approximately 15%. The Company staff made their case using aggregate harvest data that unfortunately could not be linked to any yield curve or age class, and included data that had been identified as potentially inaccurate in the 2007/08 Annual Report (See section 4.6.3). There were also questions about whether the historical harvest volumes were representative of the forest or whether they reflect harvesting on areas of above average productivity, whereas the SFMM model yield curves are based on all available forest area. Upon consideration of these points, the Planning Team felt that there was an insufficient basis for adjusting the yield curves upwards and no change was made to the new yield curves.

The audit team observes that neither it nor the Planning Team nor anyone else involved in the development or review of the yield curves has identified an error in the data or analysis used to develop the curves. Nonetheless, we believe that there is something amiss with the yield projections in the 2008 FMP, which we discuss in the context of Recommendation #3 (See Appendix 1).

There was also considerable concern on the part of MNR staff that some of the renewal measures proposed by the Company, especially low-density planting, would not produce the yields that were incorporated into the plan. The auditors share this concern and have issued Recommendation #4 as a result.

Planning difficulties were also created by the transition in SFL-holder, from Weyerhaeuser to Domtar, that occurred during the middle of the planning process (early 2007). In particular, GIS support suffered. This became especially evident during preparation of the final version of the plan, where a lengthy number of issues were uncovered with respect to the quality of information portrayed on FMP maps. For example, AOC's had been incorrectly mapped or labelled, some renewal and tending blocks had not been correctly portrayed, the data related to high potential cultural heritage AOCs may have contained several errors (therefore mapped incorrectly), and there were inconsistencies in mapping and labelling water crossings. The GIS issues plagued plan development, review and approval and have continued through to the time of the audit field visit. The Company has concluded an agreement with EACOM Timber Corporation to provide GIS services, however since EACOM's GIS office is across the province in Timmins, and many staff there are unfamiliar with the Wabigoon Forest, the audit team suggests that while this may improve the quality of GIS service somewhat, the lack of familiarity with the Forest may continue to create problems.

4.3.2 Plan Review and Approval

The plan review process was very difficult, with time pressure and a mounting tally of errors being uncovered throughout the review.

The audit team believes that the overriding concern during planning was to ensure that the mill stayed open, in spite of concerns related to forest sustainability, and this opinion is shared by many District MNR staff. The turnover at the senior levels of MNR's District staff during the planning process, as well as some prolonged absences of the long-time Area Forester due to health issues late in the planning process, seemed to place the

Acting AS's and 'DM's in the awkward position of having little context on the Forest and having missed key plan development stages. As a result, it appears that these staff were reluctant to take positions that would be opposed by a majority of the PT or Steering Committee members when issues arose during planning.

The end result was that the plan that the DM certified and recommended for approval had unaddressed required alterations as well as numerous other errors detected late in the review process. (The audit team notes that the review of the draft 2003 FMP experienced similar issues as described in section 3.3.8 of the 2005 IFA.) The DM's recommendation for approval was based on the verbal assurance of Company staff that all of the deficiencies would be addressed by April 1/08. The MNR Regional staff was given to understand, incorrectly as it turned out, that the alterations that were to be addressed after approval were not FMPM or FIM requirements.

After the plan was approved, it took some time for the Company to develop an amendment to address plan deficiencies (e.g. incomplete road responsibility map & public consultation records). A very lengthy amendment (#13) to make corrections and additions to the FMP was approved by MNR on January 11, 2010, almost two years after approval, and there are further issues that still remain uncorrected in the FMP. The Audit team notes that the 2005 IFA suggested that MNR and the Company develop contingency plans for staffing and support in the event of unforeseen delays in production of the 2008 FMP – had this suggestion been acted on, it may have saved considerable stress and enabled plan review and approval to conform to FMPM requirements.

The auditors determined that the final version of the maps provided to the public as part of the final plan inspection contained numerous flaws (the same issue was documented in the 2005 IFA for the review of the 2003 FMP). The incomplete maps did lead to an access-related issue being raised by the public. Both MNR and the Company knew that the plan being approved had numerous errors and was deficient, and the audit team thinks that MNR failed to uphold its responsibilities to ensure that the planning process was conducted in good faith. Recommendation #7 is issued in this respect, and much more detail on the planning and approval process and the issues and challenges that arose is contained in the write-up of the evidence leading to the recommendation (see Appendix 1).

4.3.3 FMP Amendments Annual Work Schedules, and Revisions

There was a total of 52 amendments processed over the audit term: 32 during the last three years of the 2003 FMP and 20 amendments over the 2008/09 – 2009/10 period (under the 2008 FMP). There were no major amendments, four amendments were categorized as minor, and the rest were categorized as administrative. For the most part the categorizations seemed reasonable. The one exception was Amendment #13, which was intended to address the deficiencies in the 2008 FMP and contained numerous pages of changes to the FMP. Classifying it as a minor amendment would not have been unreasonable.

A review of a sample of the Annual Work Schedules prepared during the audit term found that the AWSs were essentially complete and the revisions to operations were appended to the appropriate AWS. All AWSs were inspected by the Wabigoon Area LCAC prior to the MNR District Manager approving the AWS. This information can only

be uncovered by checking through the minutes of the LCAC meetings, which is a rather time-consuming process. The audit team suggests that it would be beneficial to have the LCAC compose a statement that could be attached to the AWS indicating that they have inspected the document (signed and dated by the LCAC Chair / Co-chairs).

The amendments and the AWS's were prepared and certified by a Registered Professional Forester (R.P.F.) but they are required to be certified by the plan author, and many were certified by a different R.P.F. Four out of the five AWSs that were prepared during the audit term were not certified by the plan author, as well as numerous FMP amendments. The auditors were informed that MNR has advised the Company and Plan Author regarding this deviation from the FMPM requirements and both parties have acknowledged that they will correct the situation. Recommendation #8 is issued to reinforce the point.

Amendment requests and approved amendments have been recorded in a master list which was located at front of the appropriate FMP (both Domtar and MNR Dryden copies) as required. The master list provides a brief summary of each amendment, including when the request was received by MNR, a brief description, and the approval date. The auditors found that the master amendment lists maintained by Domtar for both the 2003 and 2008 FMPs had not been updated to match the records maintained by MNR. The Company and MNR are no longer required to maintain master amendment lists at the front of their plans – they are now posted on the internet. However, in the view of the audit team, it is a good practice to maintain a master amendment list in the front of an FMP and it is suggested that this practice should be continued. The audit team also issued Recommendation #9 to ensure that the complete approved versions of all amendments are included in MNR's on-line library.

A total of 83 AWS revisions were requested, processed, and approved for the five AWSs that were in effect over the audit period. A sampling of the revisions showed that they were reviewed and approved as required.

4.3.4 Planned Harvest

As indicated in Section 3.3.1, a critical issue in the development of the FMP was the harvest profile. **Figure 3** shows the two key components of the planned harvest from the 2003 and 2008 FMPs. The basic trajectory is the same in both plans, however the decline over the first 20 years is sharper in the 2008 than the 2003 FMP.[6]

[6] Note that the 2008 harvest curve should be shifted five years to the right of the 2003 FMP curve, however it was graphed in this was to simplify the chart and to emphasize the similarity of the harvest profiles from the two FMPs.

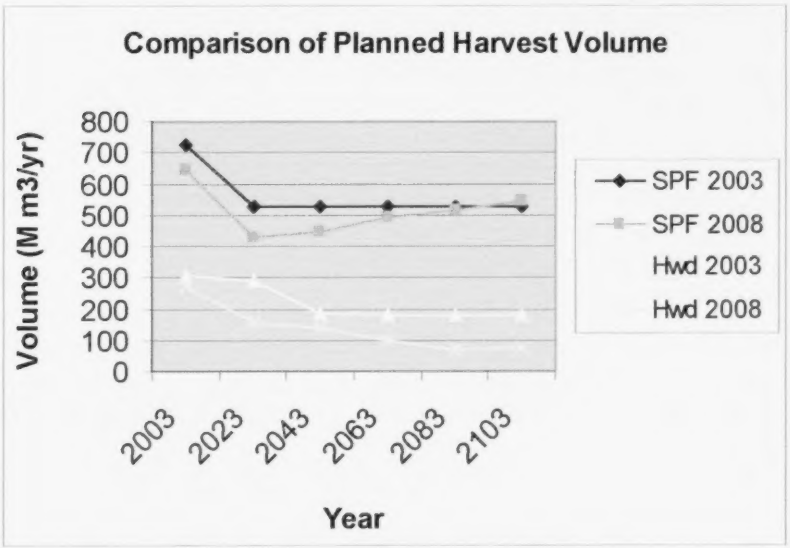


Figure 3. Projected Spruce-Pine-Fir and Hardwood Annual Harvest Volumes for the Wabigoon Forest from the 2003 and 2008 FMPs (SFMM results).

In the 2008 FMP, the planned harvest volume of all species in the first ten-year period is 917,000 m^3/yr, and this declines to 585,000 m^3/yr by 2028, and stays below 600,000 m^3/yr until after 2088 before reaching 630,000 m^3/yr in 2108. The decline in the harvest volume during the first 20 years is 36%, and while the SPF component increases from 2028 onwards, the continual decline in the hardwood component offsets it.

It is difficult to consider this harvest as being compatible with the concept of sustainability. The 2008 FMP and regional MNR staff indicated that the age class structure of the Forest is driving the decline, and an MNR representative added that a second factor is the fact that the Company chose in the past, as well as in the 2008 FMP, to delay for as long as possible any reductions in the harvest that would have mitigated the severity of the coming decline.

The audit team identifies the following additional relevant points. The first of these is that the audit team believes that there is a serious issue with the yield forecasts in the 2008 FMP (described in Section 3.3.1). Either there is a problem with the new yield curves or the mean productivity of the stands that have been allocated for harvest is above the average for the available forest. The first issue creates concern with the accuracy of the plan and the second with the implementation of the plan. Either of these issues calls into question the entire harvest profile – the impacts of such errors in a projection tend to be cumulative over time and the audit team is cautious about trying to estimate what a "corrected" profile would look like.

Secondly, the 2008 FMP identifies that the Company's business plan calls for production levels of 725,000 m^3/yr of SPF from the Wabigoon Forest, as well as 282,000 m^3/yr of hardwood. However, by 2028, the projected SPF harvest has declined to 430,000 m^3/yr. This begs the question of why a future harvest that falls well short of the business plan requirements is considered to be acceptable.

Lastly, the 2008 FMP projects that within 30 years, at least 30% of the harvest area from the 6 most productive forest units[7] (accounting for approximately 75% of the total harvest) will be stands that are younger than 60 years old, and after 50 years, more than half of the harvest area from these forest units will be from such young stands. **Figure 4** shows the percentage of the planned harvest area that is younger than 50 years, and the percentage that is younger than 60 years, by ten-year term. The long-term harvest calls for more than half of the future harvest area to come from young stands, and a sizable amount from stands less than 50 years of age. The pinch point occurs 60 years in the future, when 42% of the stands cut will be less than 50 and almost 80% less than 60. Clearly, both the anticipated harvest queue and the accuracy of the yield curves of the future stands is important, especially those assigned to the intensive yield curves.

The auditors note that many of the stands that are cut at these young ages will be tracking along the intensive yield curves. The stands are growing rapidly at these ages, and the Company is foregoing considerable additional volume by cutting them at these young ages. For example, the pure jack pine on the intensive 1 curve is forecast to yield 119 m^3/ha at age 40, 163 m^3/ha at age 50 and 193 m^3/ha at age 60. Analogous figures for jack pine on intensive curve 2 are 145, 191 and 220 m^3/ha. An additional point of comparison is that the projected average yield will be between 108 and 123 m^3/ha over the 100-year planning horizon, versus a realized yield that averages 157 m^3/ha from 1973-2008. The Company, and the Crown, are foregoing considerable volume under the long-term management direction, which leads the audit team to conclude that the 2008 FMP put a very high priority on short-term benefits at the expense of long-term benefits.

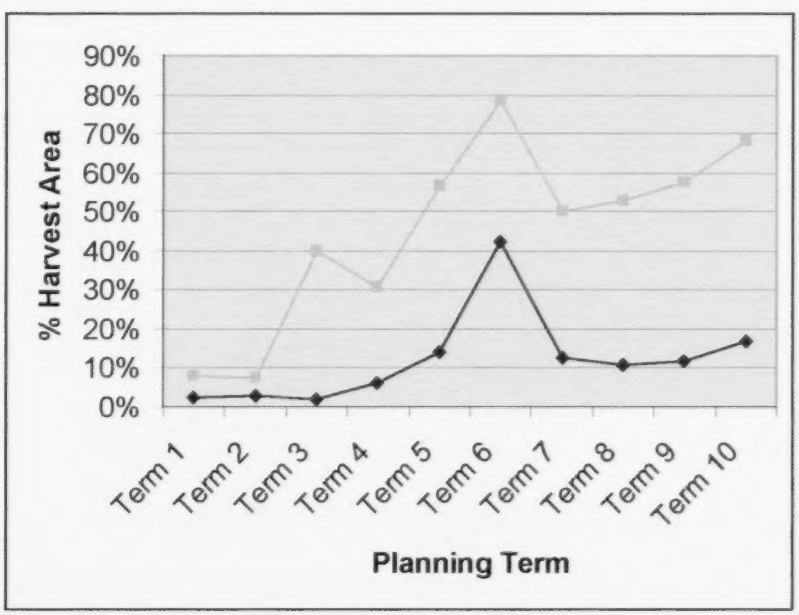


Figure 4. Percentage of the planned harvest area from stands less than 50 years of age (lower line) and from stands less than 60 years (upper line) by ten-year planning term.

[7] The six forest units were mixed conifer (CMX), mixed hardwood (HMX), pure jack pine (PJP), mixed jack pine (PJM), mixed black spruce (SBM), and shallow sites (SHA).

The audit team observes that the PT correctly applied the test of FMP sustainability that is set forth in the 2004 FMPM, however in this case, the test resulted in a Type II error[8], which is a positive test outcome of an FMP that is not in fact sustainable. The audit team has not encountered an unsustainable FMP in the past five years of auditing, and feels that the FMPM test usually works well. However, as the Wabigoon 2008 FMP illustrates, the sustainability test could be augmented to make it more robust, and this is the topic of Recommendation #6.

4.3.5 Planned Renewal

The Company has organized its renewal regimes into four classes – Basic, Extensive and two classes of Intensive – one based on regular stock and the second based on the use of genetically superior seed. The Silvicultural Ground Rules and associated silvicultural standards contained in both the 2003 and 2008 FMPs, as well as the most common treatment packages, were appropriate for the site conditions on the Forest. MNR District staff had some concerns about the managed yield curves for intensive treatments, due to the partial reliance on natural ingress for these treatments, however, these yield curves were indexed by blending with the natural yield curves to account for different planting densities, in combination with natural ingress. The Audit Team reviewed the process for developing these yield curves, and found it acceptable, although there are concerns that the criteria for the stands that are considered to be intensively managed may also include stands that are in fact managed at a lower intensity (See Recommendation #4 in Appendix 1).

4.3.6 Non-timber Ecological Resources and Areas of Concern

The 2008 FMP contains all the required plan content related to non-timber resources (i.e. wildlife, fisheries, historic forest condition, etc.). Those parts of the plan are thorough and well-written.

The amount of habitat for all selected wildlife species declines over the next 100 years, as projected by the SFMM run for the preferred management scenario. As noted in the FMP's analysis package, this is largely because most of the selected species prefer older coniferous forest, and the relative abundance of old growth declines for all those forest units. For six of the nine selected wildlife species (not counting caribou, which do not occur on the Wabigoon Forest), the largest decline is projected to occur over the first 10-year period. For those species, habitat amounts decline by approximately 16% over the first decade; from that level, the overall amounts do not increase, and remain at about a 16% decline after 100 years.

In spite of the initial sharp drop in wildlife habitat, the target levels of all species are projected to be attained. Objectives for indicators for habitat for the wildlife species modeled in SFMM were determined based on the Natural Benchmark (NATURE) run and required that aspatial habitat supply should remain within plus or minus 10% of the Natural Benchmark.

[8] A type I error occurs when a statistical test gives results that lead an analyst to reject what is in fact a true hypothesis (i.e. a false positive). A type II error occurs when the results of a statistical test suggest that the hypothesis under consideration is true, when it is in fact negative (i.e. a false negative).

Because the NATURE run projects general declines in old-forest wildlife habitat amounts associated with successional changes leading to an overall younger forest, managed declines in wildlife habitat are consistent with the overall management approach. The approach of managing to within 10% of the lowest NATURE projections is an improvement over the approach taken in the 2003 plan, which targeted managing to within 20% of the lowest amount.

In deriving old growth targets for the 2008 FMP, the planning team drew upon two sources of modeling information: the SFMM NATURE run, which simulated forest development in the absence of management, and the MNR's Bounds of Natural Variation (BNV) report [9] which estimates the composition of forests in northwestern Ontario by calculating the bounds of natural variation based on existing and theoretical age class structures and disturbance regimes. These two sources gave independent objective estimates of the natural range of old-growth levels present on the Forest. For some forest units (6 of the 14 present in the Forest) the two approaches yielded similar estimates, but for the others, the estimates were not consistent. With this information and the benefit of 'on-the-ground' knowledge of the Forest, the planning team developed old growth targets using the modeled results as input, but not being entirely constrained by those results. In the end, the identified targets for the 2008 FMP were a very considerable improvement over the 2003 targets (**Table 1**), which were set at 3% for all forest units. We note, however, that for some forest units (PJP, PJM, SBM, SBP, and SHA), the identified targets are low relative to the range of values identified by either the NATURE run or the BNV report. While expert opinion is a valuable source of insight in helping set these targets, neither the plan nor its supporting documentation provides much rationale for deviating from the modeled levels.

Therefore, while the 2008 targets are a marked improvement over the 2003 targets, further improvement is anticipated in the future as the Ontario Landscape Tool [10] will be used in the process of setting landscape targets.

OG Target	Forest Unit													
	BWD	CED	CMX	HMX	OCL	PJM	PJP	POA	PRW	PR1	SBL	SBM	SBP	SHA
2003 Target	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
2008 Target	6%	18%	5%	9%	22%	6%	2%	5%	20%	9%	22%	10%	10%	7%

Table 1. Comparison of 2003 and 2008 Old Growth Targets.

For both the 2003 and 2008 FMPs, AOC prescriptions were developed to protect the variety of values present on the Forest. The prescriptions were found to be well considered. AOC planning included all of the required documentation, including AOC's for exceptions.

Two specific topics regarding the AOCs merit additional discussion: the bald eagle nest AOC and harvesting within riparian zone AOCs. The 2008 FMP contains an AOC

[9] Ride, K.R., T.W.F. Longpre, G.D. Racey and P.C. Elkie. 2004. Estimates of ecoregional forest composition derived using modelled bounds of natural variation in northwestern Ontario. Ontarion Ministry of Natural Resources, Northwest Science and Information, Thunder Bay, ON. NWSI Techical Report TR-136. 22 pp. + appendices.

[10] Elkie, P., A. Smiegilski, M. gluck, J. Elliott, R.Rempel, R. Kushneriuk, B. Naylor, J. bowman, B. Pond, and D. Hatfield. 2009. Ontario's Landscape tool. Ontario Ministry of Natural Resources. Forest Policy Section.

prescription for bald eagle nests which is an exception to the Bald Eagle Guidelines[11]. The prescription allows harvesting within 400-800 m of the nest during appropriate timing windows. This is less restrictive than the Bald Eagle Guidelines, but actually more restrictive than the new Stand and Site Guide[12] (which permits regular harvesting within 200-400 m). The Stand and Site Guide was not yet completed during the development of the 2008 FMP. Given that the most current direction (i.e. the Stand and Site Guide) is less strict than the AOC exception in the 2008 FMP, the Company has discontinued its efforts at monitoring the nest sites using the exceptions. The audit team concurs with the rationale for this decision and believes it should be supported by the MNR through a plan amendment.

The second topic relates to harvesting within riparian AOCs. The main AOC prescription related to water quality (AOC 01) in the 2008 FMP does not permit any harvesting within the AOC. This is an overly cautious approach to riparian management which exceeds the requirements of the MNR Fish Habitat Guide[13]. For a forest such as the Wabigoon, which is experiencing a demand for all of the fibre available, this is a counterintuitive (and unnecessary) approach. This issue is discussed in Recommendation #5.

Species at Risk

The 2008 FMP notes that there are nine species at risk listed by the federal government (through the Committee on the Status of Species at Risk) or provincial government (through the Committee on the Status of Species at Risk in Ontario) whose range encompasses or may encompass the Wabigoon Forest. These are: great gray owl, bald eagle, golden eagle, eastern cougar, American badger, short-eared owl, wolverine, gray fox, and rusty blackbird. Of these species only two (great gray owl and bald eagle) occur regularly on the Forest. AOCs are in place to protect the nest sites of these two species. There are no known occurrences on the Forest of the other species, with the exception of wolverine (last sighting in 2000). The broad management approach of emulating natural disturbances will provide for habitat requirements of the broad-ranging species (i.e. eastern cougar, wolverine) should they occur on the Forest. Of the other species, the one with the greatest likelihood of occurring on the forest is rusty blackbird; riparian zone protection will continue to safeguard habitat for this species.

4.3.7 Access

Development of the roads inventory, specifically the mapped roads information, became a point of friction between the Company and MNR after the FMP was approved. Differences arose regarding the extent to which the mapped information provided by the Company and included in the FMP accurately portrayed the state of roads, and the overall quality of the mapped information. The FMP map has since been updated, but there remains a discrepancy between the FMP roads map and the roads responsibility map, which identifies which party is responsible for management of each road on the Forest. The Company has updated the roads responsibility map and has provided it to MNR for review. MNR staff believe the map should be amended into the plan, whereas Company staff note that updating road information is part of the process for phase II

[11] Ontario Ministry of Natural Resources. 1987. Bald Eagle Habitat Management Guidelines. MNR #51599. 15 p.
[12] Ontario Ministry of Natural Resources. 2010. Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales. Forests Branch. Queen's Printer for Ontario. 211 p.
[13] Ontario Ministry of Natural Resources. 1988. Timber Management Guidelines for the Protection of Fish Habitat. Ontario Ministry of Natural Resources. Queen's Printer for Ontario. 14 p.

FMP planning and so believe an amendment in not necessary. Given that MNR has yet (at the time of writing) to review the revised information provided by the Company, it is unlikely that there would be a benefit to amending the management plan at this point in its implementation.

4.4 Plan Assessment and Implementation

4.4.1 Harvest

The Company started the audit period utilizing hardwood and softwood, but by 2009 it had idled both paper machines at the mill and switched to a pure conifer furnish. Presently, the Company chips all of the softwood it harvests, with the chipping operations taking place in the bush. Hardwood is processed as roundwood and delivered to destination mills. However, earlier in the audit period when the Dryden mill was taking hardwood, it too was chipped in the bush. It is a challenge to deal with the large piles of chipper debris that are left behind, and the Company has made efforts to spread out the piles and to site prepare and plant these areas. However, the depth of the spread out piles that were viewed in the field was still too deep (0.5 – 0.75 m) to allow natural renewal to become established or to support planted stock. The result of this situation is that meaningful areas of productive forest land are experiencing a renewal delay that the audit team estimates to be at least 15 – 20 years; Recommendation #12 is intended to encourage the Company to be more aggressive in managing chipper debris.

The Company's utilization was good, and while the auditors saw that some large hardwood tops had not been chipped (they are difficult to put through the chipper), the utilization of the hardwood is considered to have largely met provincial requirements (hardwoods are no longer chipped on the Forest since the Dryden mill no longer takes hardwood). The Company is leaving live red and white pine in cutovers in an effort to increase the abundance of these species, and little logging damage on the residuals was observed. The Company is also making commendable efforts to leave black ash and maple, which are at the northern limits of their range in the Wabigoon Forest.

In the last two IFA's, the Company was issued a recommendation regarding its retention of residual trees in harvest areas. The Natural Disturbance Pattern Emulation Guide (NDPEG) requires that a minimum of 25 trees be left per hectare of harvest area, outside of the residual patches and peninsula that are required. The Company was consistently light in this regard; the audit team estimated that on many harvest areas there was an average of perhaps 18-20 residuals/ha, and moreover the number of large conifers left was insufficient. Since this issue was raised in both the 2000 and 2005 IFAs (it was the subject of three recommendations in the 2005 IFA), and because operators are able to meet the standard consistently on many other forests that the auditors have inspected in recent years, the audit team is concerned that this may be a conscious approach to increasing the harvest volume obtained from the Forest. The audit team advocates that MNR give the Company a short period of time (e.g. by April 1, 2012) to come into compliance and thereafter, rigourously inspect harvest areas and impose financial penalties when non-compliance is encountered (Recommendation #10).

A further recommendation is issued as a result of the incidents of site damage that were viewed during the audit. While not numerous, they were relatively common given the predominantly upland nature of the Forest. There were some significant occurrences of

rutting observed in the vicinity of the Timex and Seiko Roads, where the topography is rough and there are numerous poorly-drained areas. The audit team also saw several sites where there was a relatively large amount of soil erosion alongside roads built in sandy soils, and issued Recommendation #11 to avoid future site damage.

Another issue relates to circumstances around a failed planting effort (see also section 4.4.2). The audit team viewed a parcel of patent land owned by an outfitter where there was a severe blow down in 2008. The blowdown toppled most of the trees on the camp owner's property, which was a few hectares in size, as well as an estimated 25 ha of Crown forest. The outfitter allowed the Company to set up its chipper on his land, and the blowndown area was cut and planted. Unfortunately, this site was planted with stock that experienced poor handling and storage and the planting stock suffered almost complete mortality, including the stock planted on the camp owners' land. The camp owner also pointed out that the chipper area had not been fully cleaned up as he noted the Company had promised. The camp owner also stated that the Company informed him that it would not be re-planting the failed area on his property. The audit team recommends that the Company fully redress the situation with its neighbour on the landbase (Recommendation #13).

During the period of the 2003 FMP, the Company harvested 28,700 ha out of a planned 32,000 ha, for a 90% achievement rate. Of the major forest units, the harvest level on the spruce lowland was lowest, at 70% of planned. The 2007/08 AR which summarized the actual harvest over the plan period reported that the Company harvested roughly 105% of the two main jack pine forest units – the productive (PjPrd) and mixed jack pine (PjMx) FUs[14]. The Company's review of the harvest area data, in response to inquiries from the audit team, found that the PjMx had not been overharvested, but the PjPrd overharvest was confirmed by Domtar at 122 ha. This violation of the Crown Forest Sustainability Act came about when an amendment was approved that exchanged allocated and contingency harvest area. This added 116 ha of PjPrd FU area to the harvest; neither MNR nor the Company realized that this would cause the AHA to be exceeded.[15] This situation is the subject of Recommendation #24, where it is discussed in more detail.

The final issue noted with respect to the harvest is that there was a considerable amount of age-class substitution that took place during the 2003 FMP period, meaning that the harvest modelling called for harvest area to be taken from a certain age class and it ended up coming from another. Figure 5 shows that there was a considerably greater amount of area cut from the 61 – 80 year age classes and much less cut in both the 81 – 100 and 101-120 age classes.

[14] These are the forest unit names from the 2003 FMP – the PJP and PJM forest units in the 2008 FMP are essentially equivalent to the 2003 FUs.
[15] In fact, if the figures are correct, the AHA had been exceeded by 6 ha prior to Amendment #40.

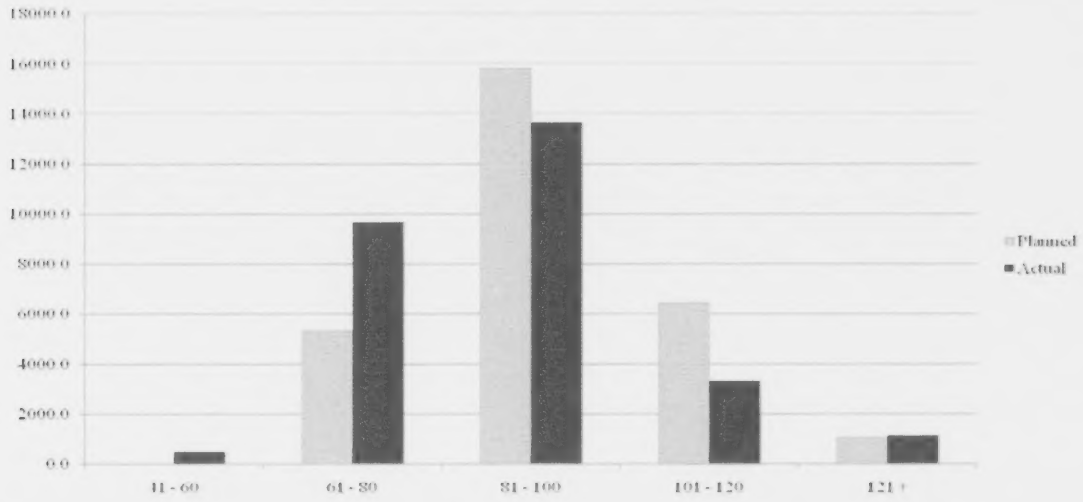


Figure 5. Comparison of planned and actual harvest area by age class in the 2003 FMP period.

The implications of this are that there is some amount of deviation from the FMP, which means that the harvest is not having quite the impact anticipated in the FMP. In the case of the Wabigoon Forest, cutting more younger stands than planned will exacerbate the coming shortages. The 2008 FMP also included a considerable amount of age class substitution, usually cutting younger stands than originally projected. During the 2008 plan term, the audit team calculates that the volume foregone by cutting younger stands was reduced by 600,000 m^3, with a further future reduction of at least 400,000 m^3. This is equivalent to losing more than one year of harvest. In other words, the proposed age-class substitution is exactly the wrong direction to take on a forest where maintaining/ increasing future wood supply is a key goal.

4.4.2 Renewal

The implementation of Domtar's silvicultural program was generally good, with one major exception. During the audit period, the Company had experienced staff members with a good knowledge of local conditions. Although most of the regeneration that we observed appeared to be successful, the total amount of area renewed was less than the level planned for in the 2003 FMP. Over the five-year term of the 2003 FMP, there was a shortfall of approximately 3,000 ha in the total area regenerated compared with the planned level, (source: Wabigoon Forest Annual Reports, 2003/04 to 2007/08). This shortfall occurred in the amount of area artificially renewed, which the Company scaled back on in order to conserve funds. Recommendation #14 is intended to address this shortfall.

Most of the natural regeneration, site preparation, planting, and seeding projects that we visited in the field were of good quality, with complete site coverage and good rates of survival and growth. The main exception was a series of blocks that were planted in 2009 which totaled approximately 300 ha. These sites were planted between June 22 and July 31, and there was almost complete mortality. The Company has conducted surveys of the 2009 planting blocks and intends to re-plant these areas in 2011.

The audit team observed an abundance of natural conifer ingress on many sites we inspected in the field; this phenomenon is behind the Company's shift to low-density planting. Although most of the sites we visited would be considered regeneration successes (i.e. successfully regenerated), on the more recently harvested and treated sites (i.e. 0 to 5 years) it was difficult to evaluate whether or not they would also succeed in such a way as to be silvicultural successes (i.e. regenerated to the projected forest unit as per the appropriate SGRs). This cannot be evaluated until the areas are assessed for free-to-grow status.

The renewal support program was also good and was sufficient to meet the needs of the regeneration program for the forest. The amount of jack pine seed in storage was somewhat low at the time of the audit – this is due to the large amount of seed required for direct seeding prescriptions. The company is aware of this and plans for jack pine cone collection and seed processing are in place to address this situation.

There is an excellent tree improvement program in place, with orchards located on private land in Rugby Township adjacent to the Forest. First and second generation seed orchards are established on the Forest. For the past several years, all white spruce and black spruce planting stock has been grown from improved seed derived from these orchards. At the time of the audit, jack pine seed orchards were just starting to produce seed. During the 2003 FMP term, 13,085,000 trees were planted on the Wabigoon Forest.

Five projects with Forestry Futures Trust (FFT) funding were implemented during the audit period. These included projects for pre-commercial thinning and for the renewal of blowdown areas. The audit team verified a sample of the treatments associated with these projects in the field, and found that the work was in place as reported and was of good quality. FFT project reports had been submitted as required and were of good quality. All completed projects had been approved by the Forestry Futures Trust Fund Committee.

4.4.3 Tending

The tending program, which included aerial and ground herbicide applications and pre-commercial thinning (PCT) treatments, was also well executed. However, the area of PCT treatment was much less than forecast in both the 2003 and 2008 FMP's. Domtar's 2003 FMP forecasted an average annual rate of PCT of approximately 550 ha/year, and the actual achievement was 44% of the planned amount. The 2008 FMP forecasted that the annual rate of PCT would average approximately 655 ha, and the average annual treatment rate was only 159 ha during the first two years of the plan, representing 24% of the annual target.

The shortfalls are due to two main factors. Firstly, more area was forecast to be treated than was actually available and feasible - surveys of candidate areas for PCT revealed that many areas did not possess the appropriate stand conditions (e.g. density range) for this treatment. Secondly, PCT treatments were conducted by First Nation contractors during the audit period and local capacity to conduct this labor-intensive treatment is limited. The audit team notes that the 2005 IFA contained a recommendation to ensure that the amount of PCT being undertaken is adequate to meet plan objectives – this issue has persisted into the current audit period. Recommendation #15 reiterates the

recommendation from the previous IFA, and requires the Company to ensure that the amount of PCT being undertaken is sufficient to meet the objectives of the 2008 FMP, and if it is not, to take measures to increase the amount of PCT or to implement equivalent treatments as necessary.

4.4.4 Areas of Concern

The audit team inspected approximately 60 AOCs during the course of the audit, primarily by aerial reconnaissance. The audit team saw examples of most of the main varieties of AOC identified in the two FMPs. For the 2003 FMP there were 46 different AOC prescriptions and for the 2008 FMP there were 38 different prescriptions, and while there is considerable overlap, there were several unique prescriptions in each plan period and some reorganization of values covered by the AOCs. The audit team estimates that there were about 67 unique AOC prescriptions used during the audit period, of which perhaps 20 were related to specific locations where there were tourism values. In all, we found no violations of prescriptions. Further inspection of compliance records showed no significant infractions or systemic issues.

4.4.5 Access

Over the course of our field inspections, the audit team travelled on several hundred kilometres of primary and branch road, all of which had undergone at least some maintenance during the audit period. Of that total, approximately 25 km was constructed during the audit period. Work done on the roads, as evidenced by the road conditions encountered, was reconciled with the records of work performed under the Road Construction and Maintenance Agreement and found to be in accord.

Road construction and maintenance on the Forest is challenging due to a number of factors, including abundant beaver populations, which clog culverts causing maintenance challenges, silty soils, and the large number of crossings necessary to deal with the access requirements. Although some minor issues were noted during the audit, in general access construction and maintenance was suitable for the conditions encountered. In addition, the aggregate pits inspected during the site visits were in reasonable condition, with one exception where the forest cover had not been cleared sufficiently from the edge of the pit.

MNR staff expressed some concern regarding the Company's efforts at monitoring crossings and the number of crossings in disrepair. As described above, minor issues were noted by the audit team, however no systemic problems were observed. In addition, a review of the compliance records did not reveal any notable trends in non-compliance. MNR staff are diligent in their role of monitoring compliance and ensuring that a high level of scrutiny is given to efforts to manage the Forest. Although not all issues raised by MNR staff were found to warrant audit recommendations, the audit team believes the level of scrutiny provided by the MNR is appropriate.

Another access-related point of tension between the Company and MNR is the circumstance regarding a watercrossing at km 4.5 of the Bear Narrows Road, which the Company has responsibility for maintaining. The crossing has a history of wash-outs due to a combination of factors, including local topography in which the road spans a very low-lying stretch of ground, particularly persistent beaver activity, and a decrepit upstream bridge which served as a dam of sorts, creating an unstable situation. The

upstream bridge, which was a safety hazard, is the responsibility of MNR. The situation was complicated by the reported presence of a threatened species (least bittern) using the upstream wetlands. Over a period of time, beginning during the audit period, and extending past it, the Company and the MNR were engaged in ongoing discussions regarding the best way to manage the situation, with each party critical of the other's approach. The situation is still not fully resolved, however progress was made after the audit field week, when the MNR removed the upstream bridge and replaced it with a structure to retain the water at a sufficient level to provide marsh habitat for the least bittern. At the time of writing, some disagreement still exists regarding the style of permanent crossing which should be installed by the Company on the Bear Narrows Road. Although both parties had professional reasons for their actions, this example is illustrative of how the discord between the Company and MNR staffs created a difficult situation out of a problem that should have been readily resolvable.

For the five-year period encompassed by the previous (2003) FMP, 56.7 km of primary road and 49.2 km of branch road were constructed, representing 60% and 39% of the planned amounts respectively. For the first five-year operational term of the FMP, only 2.2 km of primary road and 77 km of branch road are planned for construction. Although it is still relatively early in plan implementation, after two years of the first five-year term, only 4.05 km of road construction has been completed.

4.5 System Support

Because the Wabigoon Forest has been certified to the Forest Stewardship Council national boreal standard and the Canadian Standards Association forest management standard Z808/809, the IFAPP permits the audit team to omit assessment of the Human Resources component of this principle, on the basis that it will have been met in a certified company. However, the audit team believes that some comment is appropriate under this criterion.

The audit team feels that the Company is understaffed, relative to its responsibilities, and that this has had an impact on performance. Recommendation #16 is issued in this respect. The audit report has also alluded to issues with the Company GIS capability, and this is another aspect of the Company's work that is creating many headaches for both the Company as well as MNR. The audit team recognizes that the Company has been through wrenching changes in the past several years, however many other companies have as well and the auditors have not encountered such issues at other operations. The audit team's assessment of Domtar's new GIS arrangement can be found at the end of section 4.3.1.

4.6 Monitoring

4.6.1 Compliance monitoring

MNR Compliance Inspections

Although not required to do so officially until April 2006, MNR's Northwest Region prepared and approved, in March 2004, a Northwest Region Compliance Strategy. This strategy provided guidance for the Region and Districts for implementing the compliance monitoring program on all aspects of natural resource management that falls under the jurisdiction of MNR. In the case of the MNR's Dryden District, each administrative area such as the Wabigoon Area prepares a Compliance Work Schedule.

The auditors note that there are no targets listed in the Compliance Work Schedule to conduct joint compliance meetings with the SFL holder. Meetings held when there are no immediate contentious issues would help the Company and MNR calibrate their assessment of compliance in a more collaborative atmosphere. In the opinion of the audit team, this would be beneficial, since there were areas where MNR seemed to be overly strict with compliance (e.g. aggregate pits and utilization) but other areas where non-compliances were not routinely identified (e.g. soil disturbance, retention of residuals). This specific issue is discussed in detail in Recommendation #18.

Evidence gathered through the audit team's inspection of field sites and compliance reports suggests that the level of monitoring being conducted by MNR is barely adequate to ensure that the SFL Holder and its contractors are meeting the legislative requirements and their obligations. However, MNR did not meet its own compliance inspection targets; see Recommendations #17 and #18.

Company Compliance Inspections

The Company has in place a full set of standard operating procedures, policies, guidelines and monitoring programs that are regularly upgraded, and which include a strong compliance training and education component. Training is mandatory for all office staff, field staff, contractors, and workers, which must be administered within 60 days of being hired. Domtar delivers training to its own employees and contractor representatives while contractors are responsible for ensuring that their workers receive the appropriate training, with training materials being provided by the Company.

Compliance strategies and annual compliance plans have been submitted in a timely fashion and in accordance with regulatory requirements. The audit team found that the Company is generally meeting the goals and objectives of its compliance strategy. Requirements to notify MNR of its impending operations were not met regularly during the early years of the audit term. The Company is currently evaluating a new notification process which appears to be more reliable, according to MNR sources. Timeline requirements for submitting compliance reports through the FOIP system are not being met in a consistent manner – a deficiency addressed in recommendation #20.

During the field audit, the auditors found that the documentation filed with the FOIP reports sometimes did not reflect the conditions observed in the field. The auditors have noted that there has been a long-running issue with an insufficient number of post-harvest wildlife trees being retained on harvest blocks, a condition which was identified in some FOIP reports but not as often as it should have been. Another under-reported aspect was the level of site damage caused by machinery operating in unsuitable conditions, i.e. tire rutting in water-saturated soils. There were blocks where noticeable instances of site damage were observed by the auditors but not been reported in FOIP, even though the damage exceeded the Company's standard operating practices. Soil erosion of a significant nature was also observed alongside some tertiary roads that had been built on sandy or silty soils. Such damage has the potential to disrupt the productive capacity of the sites affected and Recommendation #18 is intended to address the issue.

Another matter of concern to the auditors was that some harvesting blocks were not inspected for compliance during the audit term. Changeovers in staff at the Company

may have been a contributory factor to the oversight. According to MNR directives that were in effect during the audit period, all operations were required to be inspected for compliance. The auditors are concerned with this oversight and have issued recommendation #19 to prevent such oversights.

One of the overall expectations of the training programs is prevention of non-compliances and continuous improvement. Overall (Industry + MNR reported) non-compliance frequency rates have dropped from 3.3% (2007-08) to 1.4% (2009-10). The declining trend in non-compliance frequency rates reported in FOIP may be deceiving since some aspects of non-compliance were under-reported and some blocks were not inspected.

4.6.2 Silvicultural Monitoring

Domtar has a good program of silvicultural effectiveness monitoring in place to support its field operations. Field surveys are conducted at various stages in the management of a stand. These include informal surveys done at the time of harvest for the refinement of FOPs, quality assurance surveys conducted on site preparation, tree planting and seeding projects, regeneration assessments, vegetation assessments to determine need for conifer release, 2-year post seeding assessments, pre-thinning surveys conducted on all candidate areas, 4th year regeneration surveys on silvicultural exceptions (very shallow soils, ES 11 and 12), and free-to-grow surveys.

Tracking of silvicultural projects is integrated with Domtar's in-house GIS system, which is maintained by Domtar's local silvicultural staff, and is used for day-to-day tracking of projects as they are implemented, and for scheduling. However, mapping for annual reporting during the audit period was done through Domtar's (now EACOM Timber Corporation) central GIS, which is located at Timmins. This led to a number of delays in annual reporting due to lack of timeliness, and errors which needed to be reviewed and corrected (See Recommendation #22). The entire suite of silvicultural records is used for inventory update for planning purposes. We reviewed the inventory update process for the 2008 FMP and found it to be acceptable.

MNR conducts quality assessments of Domtar's silviculture projects through the normal compliance program. The MNR at Dryden District also has a quality assurance program in place to assess Domtar's silvicultural monitoring. In general, there was a high level of congruence between MNR's and Domtar's results for free-to-grow status, as well as the stand attributes which are determined for inventory updating purposes.

During the audit period, Domtar completed exceptions monitoring, as per the commitments in the 2003 FMP, by means of their 4-year regeneration surveys. This will be continued until all relevant areas that were treated in the 2003 FMP period have been assessed.

There was an issue where some of the blocks planted in 2009 experienced almost 100% mortality. Domtar has conducted a survey of the 2009 tree plant area and thinks that the cause was a lengthy delay in planting during a work stoppage at the mill, which delayed the plant so that it was not finished until July 31, which is about two months later than normal. Areas where the survival was poor and which will need re-treatment were identified through the survey. Domtar indicated that these areas will be included in the 2011 AWS for retreatment.

Free-to-Grow Assessments

During the term of the 2003 FMP, Domtar assessed a total area of 6,642 ha for free-to-grow (FTG) status, which represented 27% of the forecast area. To date in the 2008 FMP period, Domtar has assessed 8,384 ha for FTG status, which represents 82% of the two-year target. The area assessed for FTG status in the 2003 FMP period was significantly less than the forecast area, and assessments to date in the 2008 FMP period are lagging when judged against the average annual planned rate. This was in part due to changes made in the SGRs to extend the periods of time following treatments before FTG surveys were to be conducted, i.e., from 7 to 10 years, to 10 to 14 years. Domtar also scaled back its FTG assessment program during the FMP term as a cost saving measure. This shortfall in area assessed for FTG status would appear on the surface to be of concern, however, prior to the 2003 FMP, there was little backlog of area requiring FTG survey on the Wabigoon Forest, as described in Appendix 3. Therefore, the audit team does not believe a recommendation to address this shortfall is required at this time. However, we suggest that the Company ensure that sufficient area is assessed during the remainder of the current FMP term so that a backlog of area requiring survey does not develop.

It is difficult to draw conclusions about the overall success of the regeneration program on the forest for the audit period, as well as the success rates of specific treatments, due to the relatively small area that was assessed. Also, certain treatments of interest, such as low-density planting, and those relying on the ingress of natural regeneration, at present have little or no free-to-grow information that can be used to evaluate trends. Since a high proportion of the area that was declared FTG (approximately 90%) would be considered a silvicultural success, i.e., succeeded to the projected forest unit, as per the relevant SGRs, initial indications are that the overall trend appears to be favorable.

4.6.3 Annual Reporting

There were five years of annual reports prepared during the audit period – the first of these was for activities during 2004-05. At the time of the field visit, annual reports were available for the first four years of the audit period, and the report for the final year became available while the audit report was being prepared. The District MNR is no longer required to review all Annual Reports (ARs), however the District makes a point of doing this. Of the five ARs that cover the audit period, only the 2007/08 AR has been accepted by MNR. The others have been submitted in draft form and MNR has reviewed them but the Company has not addressed the comments to the satisfaction of MNR. In the case of the 2008/09 AR, there have been four review iterations to date. Recommendation #22 addresses this issue.

The 2007-08 AR reported that 472,390 m^3 was harvested that year, which was significantly below what the Company felt was correct based on its scaled volume figures. The harvest volume figures in the AR's are provided by MNR's TREES system, and a check by the audit team found that the updated figure was for a harvest of 564,929 m^3 (the update reflects delayed deliveries of wood). The updated figure is well below the reported volumes in the first three years of the plan period (between 857,000 and 948,000 m^3/year).

What is striking is that the harvest area in 2007-08 was very close to the average annual harvest area during the five years. Using the revised harvest volume figure from MNR,

the 2007-08 harvest yielded an average of 97 m^3/ha, which is well below the average of 164 m^3/ha obtained during the first three years of the plan period, and below the planned yield of 157 m^3/ha.

A similar but less significant discrepancy had also been found between the TREES volumes in the 2006/07 AR and Domtar's scale records. Investigations undertaken at the time by the MNR did not generate a very satisfying response, since the wood measurement staff explained that differences in weight to volume conversion factors, as well as bark content and defect, could account for the differences. The responses to the audit team's inquiries were of a similar nature. While issues with factors may be at the root of the differences, the fact that they did not occur in earlier or later years suggests that some other issue is at play. Recommendation #21 is provided.

4.7 Achievement of Management Objectives & Sustainability

The audit team reviewed the achievement of the management objectives and targets set for the 2003 FMP (See Appendix 2 for an assessment of each objective). In general, the plan had three classes of objectives – those related to the provision of biological diversity, forest cover and the provision of wildlife habitat, those oriented towards socio-economic aspects of sustainability, and objectives specifically oriented towards silviculture. In the 2003 FMP period, almost all of the diversity and forest cover objectives were met or there was significant progress made towards meeting the longer term objectives. The 2008 FMP continued the basic direction of many of the 2003 FMP objectives. Compared to the 2003 FMP, the 2008 FMP contained more generous targets for old growth and the LTMD more closely followed the natural forest run than did the direction of the 2003 FMP.

The Company was less successful with the socio-economic objectives. Key objectives in the 2003 FMP concern planned harvest volume, and objectives based on the MNR Regional Assessment of the Contribution of the Wabigoon Forest to regional mill demand (they were carried over into the 2008 FMP). In both plans, the targets were far above what the Forest could produce, especially so from year 20 onwards. The targets were certainly not valid by the time the 2008 FMP was approved, since mill closures were occurring with alarming frequency during 2007 and 2008.

The Company seemed to be able to reach workable agreements with remote tourism outfitters. Other stakeholders did not seem to have issues with forest management, although the audit team did receive some public comments opining that the Forest has been heavily cut over the years. The Company has good relations with two of the five affected First Nations, and fairly basic relations with the other three. Domtar has several notable economic relationships with First Nations that were described in section 4.2. The Company has signed an MOU with one First Nation and has a protocol in place with another; nonetheless, the role of First Nations on the Forest was almost invisible to the audit team.

As described earlier, the silvicultural objective was not achieved during the 2003 FMP, with Company's artificial renewal being short by approximately 3,000 ha during the five year plan period. The Company did not close this gap during the first two years of the 2008 FMP. This result is one of the reasons that the audit team has concluded that the Wabigoon Forest was not being managed sustainably during the audit period.

The objectives in the 2008 FMP were dominated by the desire to meet short-term SPF volume targets, which originated from the Company's business plan. The FMP comes close to meeting these targets at the expense of the long-term harvest volume, which is projected to decline 36% by 2028 and remain well below the level of the Term 1 harvest for the remaining 80 years of the modelling horizon. The planning team examined an option with a somewhat lower shorter term harvest, and a somewhat higher longer term harvest, but the difference in harvest over the 100 year modeling period was insignificant and the LTMD was set to provide the higher short-term harvest level. The audit team does not think that there was this little variance in available options and a wider range of alternate options should have been considered.

To support this view, the audit team also observes that the average realized harvest volume from the forest from 1973 to 2008 was 157 m^3/ha, which is well short of the 108 – 123 m^3/ha projected during the next 100 years under the 2008 FMP. In part, these low future yields occur because the FMP anticipates that by 2058, more than 50% of the harvest volume will be taken from stands less than 60 years of age. The Wabigoon Forest is very productive and the 2008 FMP does not come close to taking full advantage of its productivity. The definition of sustainability in the Crown Forest Sustainability Act refers to the conservation of the productivity of Crown Forests and the 2008 FMP does not meet this test in the view of the audit team. The audit team also notes that the significant amount of age class substitution that took place during the 2003 FMP and is anticipated during the 2008-2018 term further reduces harvest yields from this Forest.

The assessment of sustainability has been complicated by the issues associated with the projected yields used in the 2008 FMP. As indicated above, the reaction of the Company staff upon reviewing the new yield curves developed for the plan was that they underestimated softwood volumes by 15% but the District MNR members of the PT and Regional MNR advisors decided in the end to retain the curves because they had been based on the best available information and the Company could not develop a convincing case that they were too low. Although the audit team was unable to find a calculation or methodological error in the yield curve development, as noted above the projected yields are between 25 and 33% below historical yields, including yields during the audit period. If the yield curves are indeed accurate, then it is likely that the Company has been allocating better than average stands in order to generate higher yields. This is equivalent to high grading the forest and it also implies that when the Company does begin to harvest the less productive stands, there will be lower than forecast yields. This situation, taken together with the concerns identified above would prevent the audit team from concluding that the 2008 FMP was sustainable.

If the yield curves are inaccurate and underestimate yields, then there will be more volume available than planned. If the underestimate is 15%, the future yields will be between 12 -22% below historical levels. The 2008 FMP will also have an artificially high harvest in Term 1 since the harvest was driven by the desire to meet the volumes from the Company's business plan. Finally, the FMP will have a significant error in it, which is troubling.

In summary, this audit has found numerous concerns with the current and future harvest levels set out in the 2008 FMP (See for example Recommendations #3, #4, #14, and #15.). The audit team feels that the Company has put cost reduction and the continued operation of the mill in the short-term above the provision of long-term forest benefits

and does not feel that this is consistent with the concept of sustainability. Many of the MNR District staff indicated to the audit team that they doubt the sustainability of the FMP and the LCAC statement in the 2008 FMP expresses many reservations about whether the 2008 FMP provides a suitable balance of short-term and long-term benefits. In conclusion, the audit team feel there is a clear basis for concluding that the Wabigoon Forest is not being managed sustainably and that the 2008 FMP does not adequately provide for long-term sustainability in either environmental, economic or social terms.

4.8 CONTRACTUAL OBLIGATIONS

The Company was in compliance with many of its contractual obligations, but was out of compliance in some key areas. (See Appendix 3 for a detailed assessment of the Company's contractual compliance.) As mentioned in section 4.4.1, the Company was also in violation of the Crown Forest Sustainability Act when it cut 122 ha more than the allowable amount of the pure jack pine forest unit (Recommendation #24).

In its most serious violation of contractual (licence) obligations, Domtar has chosen not to comply with two key wood supply commitments. While agreements were made with the commitment holder (AbitibiBowater) to obtain wood from another forest, the commitment holder was disappointed with the outcome of these alternate arrangements and did not extend the agreement after the initial year. AbitibiBowater has continued to seek access to its committed timber and Domtar has not provided an equivalent alternative. While this situation is a violation of Domtar's SFL obligations, it also illustrates the lack of flexibility in the commitment mechanism. The issue is discussed in detail in recommendation #23.

Domtar was fully up to date, as of March 31, 2010, in its Crown charges payments, however two mills that took delivery of wood from the Wabigoon Forest and are responsible for paying the Crown directly owed roughly $641,000 in Crown dues, $211,000 in Forestry Futures trust payments and $173,000 to the Forest Renewal Trust. These delinquent payments are an issue between the Crown and the two mills; Domtar has no role in this issue. The KPMG specified procedures report noted several instances of expenses incurred on the Trout Lake Forest being erroneously attributed to the Wabigoon Forest. The audit team did find that almost $100,000 of Forest Renewal Trust (FRT) expenses from the Trout Lake Forest were inadvertently charged to the Wabigoon Forest FRT – Recommendation #25 is intended to correct the situation and ensure that there are no other errors.

The audit team verified a sample of the treatments associated with silvicultural activities charged to Forest Renewal Trust Fund for the year 2008/2009, as part of the Specified Procedures field review. We verified the implementation of all silvicultural treatments as reported and observed that the work was of good quality. The audit team also verified free-to-grow assessments reported by Domtar for fiscal 2008/2009. Domtar maintains good project records and maps of these projects.

The Company has an on-going training system and prepared annual compliance plans as required. Several issues related to the compliance program led to recommendations however, including issues with unreported site damage and inadequate residual retention, and also delays in submitting compliance reports. The auditors found that there were more than 100 open compliance files that should have been closed by the

time of the audit and there is a recommendation directed jointly to MNR and the Company to get on top of the situation (See Recommendation #17).

It is also a licence requirement to prepare an FMP, AWS's, and AR's as required. The 2008 FMP was approved by MNR when it was deficient, which is a breach of MNR's fiduciary duty to uphold its forest management responsibilities. Two MNR staff reported that the District MNR and Company had reached a verbal agreement whereby, shortly after the plan came into effect on April 1, 2008, the Company would request an amendment to address the identified errors and shortcomings, but this did not happen. An amendment addressing a large number ,but not by any means all, of the errors and deficiencies was approved in January 2010 and the remaining problems have not yet been addressed. While the audit team primarily faults the MNR for agreeing to approve a deficient plan, the Company is also culpable in this outcome. The Company has prepared AWS' as required but only one of five AR's for the audit period have been accepted – the other four have been submitted but the Company has failed to satisfactorily address all of MNR's concerns (See Recommendation #22).

4.9 Conclusions and Licence Extension Recommendation

This audit has been a very challenging one for the Company and the MNR. During the audit period, and especially during preparation of the 2008 FMP, the Company was going through very difficult times and District MNR experienced a high level of senior staff turnover and the absence of a key person due to leave for illness. These factors created multiple stresses that affected numerous aspects of planning and management during the audit period.

This audit found that the Company performed fairly well operationally. Utilization and block layout were good and roads and water crossings were well-maintained. Some instances of site damage were observed in the field (Recommendation #11) and the Company was fairly consistent in leaving too few residual trees on site, and too few large conifers (Recommendation #10). Aside from four or five planting operations that failed in 2009 due to issues with stock handling, the Company's renewal operations were successful in producing regeneration and the audit team agrees with one of the Company's key contentions that there is often abundant natural regeneration of conifer on many sites. However, the Company scaled back its artificial renewal efforts to save money and there was a 3,000 ha renewal gap created during the 2003 FMP period that has not been reduced since then. The audit team is also concerned that the Company's efforts to manage the piles of debris left after chipping are not effective in maintaining the productivity of the affected areas (Recommendation #12).

The Planning Team made some notable improvements in the 2008 FMP, especially raising the planned levels of old forest retention above those in the 2003 FMP. However, in the view of the audit team, the 2008 FMP has put an excessive emphasis on obtaining short-term benefits from the forest at the expense of the longer-term. This can be seen from the planned harvest levels, which are projected to decrease from 920,000 m^3/yr in the 2008-2018 period to 585,000 m^3/yr by 2028, and exhibit no meaningful recovery over the next 80 years. A second concern of the audit team is that the Wabigoon Forest is being managed at a level of productivity well below its capacity. The average yield per hectare from the Wabigoon Forest from 1973 to 2008 has been 157 m^3/ha, while the 2008 FMP projects yields ranging from 108 to 123 m^3/ha over the next 100 years.

The analysis of these two concerns has been complicated by issues with forecast yields. As part of the 2008 FMP development, the Company and MNR Northwest Region Science and Information group jointly engaged a growth and yield expert to improve the yield curves by basing them on the best available science. This was a well-intentioned initiative. Unfortunately, there is doubt that the yield curves are accurate and concern that they may be underestimated harvest yields by roughly 15%.

While the audit team did not find a calculation or methodological error in the yield curve development, we are confident there is an issue. There are two potential scenarios:

i) The current forest yield curves are incorrect and underestimate yields by roughly 15%; or
ii) The Company has allocated and harvested stands which are better than the average for the Forest instead of cutting stands which are representative of the average conditions in the Forest.

If the yield curves are correct, then the forecast harvest levels and projected yields are as indicated above and the Company is likely harvesting better than average stands. The audit team does not find this situation consistent with the concept of sustainability. If the yield curves are erroneous, there will be more volume in the forest than the 2008 FMP forecasts and the future harvest levels will be higher than shown in the plan. However, the Company will be harvesting more volume in term 1 than they otherwise would (since the T1 AHA rose due to the new yield curves) and the FMP would contain a significant discrepancy in the yield curves. Even with higher yields, there is still a planned decline in harvest that is significant and the future forest may be harvested to provide yields that are below historical norms.

In either case, the audit team concludes that the 2008 plan puts excessive emphasis on maintaining the harvest during the 2008-2018 period, at the expense of the future harvest and the audit team cannot consider the FMP to provide for sustainability.

During the audit, the Company and some MNR staff argued that the Planning Team tested the sustainability of the draft FMP as required by the Forest Management Planning Manual (FMPM). This test consists of assessing whether the implementation of the FMP would meet the FMP objectives and targets. The audit team agrees that the PT applied the test in the manner prescribed in the FMPM. However, because the PT can adjust the objectives and especially the targets during plan development to match what the forest can provide, the FMPM test of sustainability can become a tautological exercise that reduces sustainability to the outcome of a process rather than a condition of the forest. A second implication of this approach is that in effect each PT defines what sustainability means on the Forest. While almost all of the FMPs that the auditors have reviewed over their auditing careers are sustainable, in this present case, the audit team has concluded that the planning process allowed the approval of a plan that is either clearly unsustainable (if the yields are correct) or debatably sustainable but inaccurate. As a result, the audit team is recommending that Corporate MNR amend the FMPM to add some supplementary guidelines to help planning teams develop a more consistent approach to sustainability across the province.

The process of developing the 2008 FMP was very contentious. There were deep divisions on the planning team regarding the appropriate balance of the harvest over

time, with the Company and regional MNR PT members backing a more aggressive harvest and District MNR members split. In the end, the PT selected the LTMD with the higher immediate harvest and lower future harvests – by 2028, the planned harvest will be 36% lower than the current harvest. Moreover, the harvest is only expected to show a small recovery by about 2078 or so. As the draft plan went through the review process, MNR continued to find errors and deficiencies, especially related to GIS products, and the Company could not fix them fast enough. A "final" plan that was known to be incomplete and contain numerous errors was provided to the public for inspection. MNR agreed to approve the FMP provided that the Company addressed the errors and omissions by April 1, 2008. It took the Company almost 2 years to have an amendment approved to correct a number of the errors, and there are still issues that have not been closed.

Finally, in addition to the foregoing, this audit found a violation of the CFSA and significant violations of the SFL conditions, notably the Company's refusal to abide by the wood supply commitment conditions #2 and #3 in Appendix E.

While the Company and MNR both do a number of things well, the performance of both organizations is undermined by the poor relationship between them. The audit team observed many areas where poor performance is tied to a poor relationship, including preparation of the Annual Reports (Recommendation #22), assessments of compliance in the field (Recommendations #17 and #18), Company participation on the LCAC (Recommendation #1), and most notably the host of issues associated with the 2008 FMP (Recommendation #7).

There is a clear need to improve the relationship between Company staff and MNR. New local leadership in both organizations will help in this regard. The audit team saw evidence that the Company and MNR can work very well together when their interests are aligned; it is unfortunate that the individuals in both organizations appear to have come to see the other organization as working in opposition to the common good.

The audit team concludes that management of the Wabigoon Forest was not in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was not managed in compliance with the terms of the Sustainable Forest Licence held by Domtar. Forest sustainability is not being achieved as assessed through the Independent Forest Audit Process and Protocol. Therefore, the audit team recommends the Minister not extend the term of the Sustainable Forest Licence #541593 for a further five years.

APPENDIX 1 – AUDIT FINDINGS

This appendix is comprised of a series of completed templates, organized in the order in which the procedures appear in the IFAPP. The template maintains flexibility for auditors to develop recommendations where they see a "critical lack of effectiveness" (See IFAPP section 3.9), even though no non-conformance with law or policy has been observed.

Recommendation #1
Principle 2: Public Consultation and Aboriginal Involvement **Criterion 2.1.1: LCC Establishment and Terms of Reference** **Procedure 2.1.1.1:** Assess establishment of the LCC. ... This will also include examining whether the LCC includes a range and balance of interests...
Background Information and Summary of Evidence: The 2008 FMP was prepared under the 2004 FMPM, which states that "Persons directly employed by the sustainable forest licensee ... are eligible to be members, but will not make up the majority of the committee." The FMPM also indicates that the forest sector should be represented on the LCC. It is common practice in other Ontario forests for the SFL-holder to send at least one representative, and often two or three, to an LCC meeting, depending on the agenda for the LCC meeting. It is also common for SFL-holder representatives to provide information to the LCC on a range of topics, and participate in discussions. The Dryden LCC, known as the Local Citizens Advisory Committee (LCAC), did not have regular participation from company representatives. This situation arose in part because the Company maintains a separate Public Advisory Committee that includes First Nations representatives, initially set up when the company (under different management) sought Canadian Standards Association (CSA) certification. A second key contributing factor is that the Company formerly relied on the MNR Area Forester, who had been in place for many years, to present information to the LCAC on behalf of the Company. While the arrangement appeared to work well, in the last several years the former Area Forester was absent for considerable periods of time due to health issues and he has now retired. Company staff indicated that they had never been invited to the LCAC since the Area Forester's retirement and they felt they were not wanted there.
Discussion: While the lack of LCAC participation may have been acceptable for the Company in the past, now that the former Area Forester has retired from MNR, the poor relations between the Company and District MNR have led to the current undesirable situation. This lack of involvement prevents Company staff from participating in discussions and being able to provide their perspectives on issues, and receive direct feedback from the LCAC. Participating in LCAC meetings would help the Company build relationships with LCAC members and their constituencies. It is the experience of the Audit Team that there are many advantages to having the Company as a permanent participant in the LCAC.
Conclusion: The Company should be a member of the LCAC to be in compliance with the FMPM, provide it appropriate opportunities to make presentations of its perspectives and receive feedback from the LCAC.
Recommendation: Dryden District MNR shall invite the Company to be a regular participant at LCAC meetings.

Recommendation # 2
Principle 2: Public Consultation and Aboriginal Involvement **Criterion 2.5.2: Participation of Aboriginal peoples in the benefits provided by management planning** **Procedure 2.5.2.1:** Review whether Aboriginal peoples were provided with, and whether they availed themselves, of opportunities to achieve more equal participation in the benefits provided through forest management planning and assess the results.
Background Information and Summary of Evidence: The Dryden MNR District does not have a native liaison position, unlike most other MNR Districts in Ontario. The role of that position is typically to facilitate the interaction and improvement in relationships between MNR and the affected First Nations. Since many issues involve the SFL-holder as well, the Liaison Officer also contributes to an improved relationship between the SFL-holder and First Nations. In the case of the Dryden MNR District and the Company, the creation of opportunities to work together with First Nations could help to improve the relationship between the two organizations. It was evident that there were generally poor communications between the MNR District and local First Nations, according to the two First Nations representatives who were interviewed by the audit team. Both representatives stated that communication with the Company is good and if they have concerns, they go directly to the Company, or else to the MNR District Manager, as their relationship with MNR is otherwise limited. They felt that MNR staff provided little flexibility in their responses when they discussed issues such as protection of values.
Discussion: It is the experience of the audit team that most MNR Districts have a Native Liaison or equivalent position and it is often filled by an Aboriginal person, and that having a person in such a position is very helpful for both the District MNR and the SFL-holder to build relationships with affected First Nations.
Conclusion: MNR rapport with First Nations is inadequate, due largely to the fact that there is no appropriate mechanism for MNR to communicate with First Nations.
Recommendation: Dryden District MNR shall ensure that Aboriginal Liaison duties are fulfilled to facilitate the improvement of relationships with First Nations.

Recommendation #3

Principle 3: Forest Management Planning

Criterion 3.4: Proposed Long-Term Management Direction

Procedure 3.4.1.2.1: Assess and report on whether the FMP modelling assumptions used are reasonable and whether they are based on the best available information.

Background Information and Summary of Evidence: Domtar retained the services of a growth and yield expert to design the yield curves based on the most current science that was available through MNR's Northwest Region. The revision was not based on any misgivings about the yield curves used in the 2003 FMP, but rather on the desire to improve the scientific validity of the yields. The rationale and background information used in the design of the yield curves are thoroughly documented in the FMP Analysis Package. The new yield curves for the current forest were lower than the yields that had been used in the 2003 FMP and Domtar staff suspected that the resulting yield curves may have underestimated the softwood yields by roughly 15%.

Domtar staff conducted a validation exercise by comparing actual scale returns on the Wabigoon Forest on a forest-wide basis to the newly-developed yield curves. Unfortunately, the data that were available did not tie back very closely to individual forest units and age classes, and after consideration, the PT and the MNR Northwest Region advisors decided that there was insufficient basis to adjust the new yield curves and so the FMP development continued without adjusting the new curves.

The auditors compared the peak yields of the 2008 yield curves to those developed for the 2003 FMP by key forest unit and discovered that the yield reductions were dramatic in some cases, as shown in the table below. The yields shown are the all-species volumes at the approximate age of the maximum mean annual increment (M.A.I.).

Forest Unit	Approximate Age of Max M.A.I.	Present Yield 2003 FMP curves (m3/ha)	Present Yield 2008 FMP curves (m3/ha)	% Reduction from 2003 to 2008
PjPrd	85	205	163	20.5%
PjMx	85	190	124	34.7%
SbPrd	95	163	147	9.8%
SbMix	85	178	149	16.3%
OCLow	95	93	38	59.1%
MxCon	85	192	143	25.5%
MxHwd	85	190	165	13.2%
PoAll	75	210	171	18.6%
ShAll	55	133	62	53.4%

The yield figures shown above indicate that for all forest units, the 2008 FMP projects yields that are lower (in some cases, dramatically so) than were forecast in the 2003 FMP. Comparison of planned versus actual historic yields also suggests that the Company's assessment was correct

that the yields in the 2008 FMP are on average 15% below what can be expected from the Forest. The 2008 FMP projects a future average yield ranging from 108 - 123 m^3/ha in future planning terms between 2008 and 2108, a 22-32% reduction in forecast yield compared to the average yields obtained between 1973 and 2008, which was 157 m^3/ha.
Discussion: The Audit Team believes that it has clearly demonstrated that there is a problem with the harvest forecasts in the 2008 FMP, but it was not able to pinpoint an error in the methodology or calculations of the yield curves. It is possible that the yield plot data used to derive the new curves was not representative of the forest – this possibility was not examined by the auditors. There is also some possibility that the yield curves are in fact correct and that some other factor is at play. The most likely possibility is that the Company is harvesting the best stands first, leaving the lower volume stands for later. However, during the development of the 2008 FMP, the Company evidently felt that the curves were underestimates and during the audit report review process, the Company acknowledged that the "curves do seem to underestimate the harvest at this time", but added that they might be harvesting the better stands at present.
Conclusion: The forecast yields are significantly lower than historical and recent yields and the new yield curves that were developed for the 2008 FMP seem to be on average 15% too low. However, because the audit team could not find an error in the methodology or analysis used to develop them, it may be that there is another explanation for the yield reduction. In the view of the audit team, the alternate explanation would be that the Company has been preferentially harvesting the more productive stands from the forest, which gives rise to different set of sustainability issues. Considering the evidence available, the auditors are inclined to think that the yield curves are the source of the yield forecast issues. However, in either case, there is a serious issue with the forecast yields in the 2008 FMP and it is troubling that the plan proceeded without a definitive resolution of the Company's original contention that the curves were inaccurate.
Recommendation: Domtar and Dryden District MNR shall review the yield curves that were developed for the 2008 FMP at the mid-term FMP review (i.e., in 2011) and determine if the actual harvest yields continue to exceed the forecast yields. Based on the outcome of the review, MNR and the Company shall take any appropriate actions.

Recommendation #4
Principle 3: Forest Management Planning **Criterion 3.4: Proposed Long-Term Management Direction** **Procedure 3.4.1.2.1:** Assess and report on whether the FMP modelling assumptions used are reasonable and whether they are based on the best available information.
Background Information and Summary of Evidence: The Company has been seeking ways of reducing silvicultural costs without risking poor renewal results, and has introduced two new preferred renewal strategies under its silvicultural approach: low density planting of spruce and jack pine. In this case, low-density planting would target the planting of 1600 pine stems per ha (sph), or 1200 -1600 spruce sph, depending on the characteristics of the site. This contrasts with typical planting densities of 2200 – 2500 sph. The new strategies were developed to prevent overstocking of spruce and pine stands where spruce or pine natural regeneration is usually expected. The Company's rationale for introducing these strategies is based on regeneration surveys obtained from areas harvested in 1999 – 2003 which confirm that there is an abundance of spruce regeneration from natural ingress present in planted areas. The audit team's field visits confirm this general impression. District MNR has expressed unease over the success of low density planting treatments in terms of accurately predicting the future forest type (e.g., mixed versus pure stands). MNR went so far as to make a commitment in the 2008 FMP to the LCAC that they would set up a monitoring process to verify the volumes from future harvest areas to confirm that the new volume estimates used to develop the 2008 FMP are valid. To date, MNR has not acted on this commitment. MNR staff indicated that they are not quite sure how to best set up such a process, which they envisage as requiring separate licences for each harvest block to provide block-specific harvest records. The availability of funds is also an issue. The Company also makes use of aerial seeding of jack pine, and on the jack pine forest units, a preferred silvicultural regime in some situations (one of at least several examples is treating the jack pine pure FU to get a jack pine mixed FU back) is to treat the site with an aerial seeding prescription, followed by pre-commercial thinning. The renewing stand would be considered to be intensively managed and would track the PJMInten1 yield curve. Similarly, scarified renewal areas with natural regeneration are also candidates for pre-commercial thinning to produce intensively managed stands. However, the Company does not pre-commercially thin (PCT) a renewing stand if the density is less than 9,000 stems per hectare, so many hectares that were intended to be intensively managed may not receive the PCT treatment. Further, since stem density is the basis for determining whether the renewing stand is on the PJMInten1 yield curve, a seeded stand that has a density of between 1,750 – 3,500 trees per hectare would meet the density criterion and be considered PJMInten1. This does not seem plausible; at maturity, the PJMInten1 yield curve produces some 30% more volume per ha than the present Forest.
Discussion: The aspects of the Company's silvicultural strategy described above are risky in the sense that the projected high yields may not materialize, and it will be at least 10 – 14 years after

treatment, at the time of the FTG assessment, before the Company can adequately begin to assess this. It is difficult to assess from the plan how much area will be treated using low-density planting and how much area will be aerially seeded and/or scarified with natural renewal with the expectation that it will become an intensively managed stand. The FMP does indicate an annual limit of 655 ha of PCT.
Conclusion: In the view of the audit team, there are elements of the renewal strategy that may result in the production of lower-than–expected yields. Because significant amounts of the future harvest are projected to occur in the 40-60 year age classes, there is little tolerance for mis-calculation. The success of these treatments in meeting the silvicultural standards (e.g., projected forest units, species composition, and density) as well as growth and yield projections is important to sustainability of the forest. The audit team thinks that both MNR, due to its commitment, and the Company, should work together to monitor the results from areas renewed in the manner discussed above.
Recommendation: Domtar and Dryden District MNR shall jointly monitor the results of low-density planting and aerial seeding treatments that are intended to lead to intensively managed stands and report the results separately in future Annual Reports, starting with the 2012-13 AR. Should the evidence indicate that the treatment strategies are not successful in meeting the silvicultural standards or producing the anticipated growth and yield results, the Company will modify the SGRs and their use of these strategies.

Recommendation #5
Principle 3: Forest Management Planning **Criterion 3.5.2: FMP Area of Concern Prescriptions:** The FMP must contain specific prescriptions for all AOC's which may be affected by planned operations within the areas of operations. **Procedure 3.5.2.1: AOC Prescriptions:** Review the AOC prescriptions and assess whether: • ...planning of AOCs included environmental analysis of alternatives that would support protection of values... • specific prescriptions for planned harvest, renewal and tending activities are appropriate to protect the values.
Background Information and Summary of Evidence: The main AOC prescription related to water quality (AOC 01) in the 2008 FMP does not permit any harvesting with the AOC. This is a very guarded approach which exceeds the cautious requirements of the MNR Fish Habitat Guide. The wood available in AOCs can contribute to meeting the wood supply demands of the Forest, (For example, the FMP notes that, for at least one area intended for harvest in the plan period "... there is a lot of targeted age class forest units tied up in lakeshore reserves"[16]), and as noted in the plan, the entire allocation for the plan period is intended for harvest.
Discussion: The Stand and Site Guide recognizes the ecological value of careful management of riparian areas, using a suite of approaches that includes harvesting under appropriate circumstances. The Guide itself notes that "In contrast to the *Timber Management Guidelines for the Protection of Fish Habitat,* direction in this guide not only permits, but encourages, management in shoreline areas, primarily to meet the ecological objectives noted above ..."[17]. The Stand and Site Guide must be used for planned operations for the second five-year term beginning with planned operations scheduled for implementation in 2012. Although the standards and guidelines identified in the Stand and Site Guide do not require harvesting occur in shoreline AOCs, as noted earlier, it is encouraged. Revising riparian AOC prescriptions to be consistent with the Stand and Site Guide's means to facilitate harvesting would require some effort, however given the ecological and economic value of doing so, it seems a beneficial course of action.
Conclusion: To capture both ecological and economic benefits, the plan's AOC prescriptions related to fish habitat and water quality should be revised for the second five-year period of the plan to facilitate harvesting, where appropriate, following the standards and guidelines of the Stand and Site Guide.
Recommendation: Domtar, in collaboration with Dryden District MNR shall revise the fish habitat and water quality AOCs, for the second five-year term of the FMP, to facilitate harvesting in riparian areas, where appropriate, and following the standards and guidelines of the Stand and Site Guide.

[16] FMP p. 241
[17] Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales. p. 37

Recommendation #6

Principle 3: Forest Management Planning

Criterion 3.5 Planning of Proposed Operations: To review and assess planned implementation of the management strategy.

Procedure 3.5.12 Determination of Sustainability: Assess whether the FMP provides for the sustainability of the Crown forest on the management unit based on the collective achievement of the objectives, comparison of proposed operations to the LTMD, and the associated rationale for any management objectives that are not achieving the desired levels.

Background Information and Summary of Evidence: The sustainability of the 2008 Forest Management Plan was tested following the direction provided in the 2004 FMPM. Section 1.3.11 of Part A of the FMPM states that "*The determination of sustainability will consider the collective achievement of objectives and the comparison of proposed operations to the long-term management direction and will conclude that on balance, objectives are being achieved, and progress is being made towards the desired forest and benefits.*" Section 5.4 of the 2008 FMP, which summarizes the results of the determination of sustainability of the FMP, concludes with the following: "*Overall, the assessment of objective achievement, the social and economic assessment and the Long-term Management Direction have all demonstrated that the 2008-2018 FMP for the Wabigoon Forest has regard for plant life, animal life, water, soil, air, social and economic values … As a result, it can be concluded that this forest management plan provides for the sustainability of Ontario's Crown Forest on the Wabigoon Forest.*"

The audit team has reviewed the FMP and concluded that the planning team followed the direction in the FMPM in assessing the sustainability of the operations provided under the FMP. However, unlike all other FMPs that this audit team has reviewed over the past five years, in this case the FMPM methodology was insufficient to ensure the sustainability of the FMP. The main gaps /risks in the sustainability of the 2008 FMP that were built into the plan objectives and targets, explicitly and implicitly, are:

- A 36% decline in the allowable harvest volume from 2008 to 2028 (i.e. from 920,000 to 528,000 m^3/yr) and negligible recovery over the remainder of the forecast period (to 2108) runs counter to the notion expressed in the wood supply objective that the wood flow is continuous, in the opinion of the audit team;
- The planned yields from the forest range from 108 – 123 m^3/ha, whereas historical actual yields average 157 m^3/ha; the plan proposes to manage the forest at 75% or less of its inherent productivity;
- The reliance on young stands (< 60 years) to provide more than 50% of the forecast harvest volumes from the key forest units (PJP, PJM, SBM, SHA, CMX and HMX) from 2058 to 2108.

Discussion: Despite these issues, the 2008 FMP was judged to be sustainable when tested using the FMPM process. One of the reasons has to do with the manner in which objectives and targets were set. Objective #9 is the main wood supply objective, which is to provide a predictable and continuous supply of wood products to the forest products industry from the Wabigoon Forest. Table 14 in the FMP indicates that the Term 1 (2008-2018) target is a

minimum of 867,000 m^3/yr of SPF volume and a minimum of 254,000 m^3/yr of poplar. A separate long-term desired harvest level is set at 500,000 m^3/yr of SPF, 100,000 m^3/year of poplar and 15,000 m^3/yr of white birch. The rationale makes it very clear that these long-term desired levels were set at the maximum level that could be obtained subject to an acceptable achievement of other objectives. In other words, the targets are outcomes of the plan, rather than inputs, and it is this that undermines the intent of the FMP objective and target setting process. The determination of whether the planned operations meet the FMP objectives and targets is an important aspect of the test of overall FMP sustainability, and it has usually proven to result in sustainable plans. However, the Wabigoon 2008 FMP has shown that this test has the weakness that the Planning Team may determine the objectives as outcomes of modeling, rather than independently. In such a situation, the logic of assessing sustainability on the basis of achieving objectives whose projected attainment is in essence guaranteed by virtue of the manner in which they are developed is tautological. The audit team recommends that consideration could be given to supplementing the FMPM sustainability test by adding some guidelines around key variables. Appendix 2 of the MNR publication Provincial Wood Supply Strategy is titled "Best Practices for Wood Supply Modelling", and it includes a suggestion that FMPs should avoid a Long Term Management Direction in which the projected harvest declines by more than 10% from one term to the next. The audit team thinks that if a planning team wished to over-ride the guideline, it should be required to obtain RD approval. Similar guidelines for a small number of other key variables could also be developed.
Conclusion: The audit team concludes that the methodology provided in the FMPM for testing the sustainability of a Forest Management Plan should be augmented by a small number of additional guidelines which are designed to prevent large changes or very low or high levels of key forest variables.
Recommendation: Corporate MNR shall augment the methodology provided in the FMPM for assessing the sustainability of a forest management plan to make it more robust.

Recommendation #7

Principle 3: Forest Management Planning

Criterion 3.6: FMP Submission, MNR Plan Review and Approval

Procedure 3.6.1.2: Review the preliminary and final lists of required alterations compared to FMPM requirements, documentation related to addressing required alterations, and have discussions with reviewers and the plan author to assess ... how the required alterations were addressed in the plan.

Background Information and Summary of Evidence: There was considerable time pressure to complete the review of the draft and revised versions of the 2008 FMP, and have the plan approved by April 1, 2008. The situation was complicated by staffing turnover within the MNR District and the unavailability of the Area Forester due to illness, and organizational changes at the Company.

Examination of the plan review schedule revealed that June 2007 revisions made to the schedule created a rather tight timetable toward the later stages of plan production, as can be seen from the table below, that shows shifts in the scheduled dates of draft and final plan submission, and the actual submission dates. Little opportunity was left for any unforeseen delays.

Event	*FMP Production Schedule Deadline (original version)*	*FMP Production Schedule Deadline (final revised)*	*Actual Submission Date*
2008 FMP Draft Plan Submission to MNR	June 8, 2007	June 26, 2007	June 26, 2007
2008 FMP Final Plan Submission Date	November 26, 2007	January 11, 2008	January 15, 2008*

* Most components of the final plan were submitted on this date, but a few items were missing and submitted shortly afterwards.

The Preliminary List of Required Alterations (PLORA) recorded 501 required changes to the draft FMP, while the Final List of Required Alterations (FLORA) was expanded to 513 required changes to include comments received from the public during their review of the Draft FMP. The auditors conclude that all of the required alterations are suitable and reasonable requests – none appeared to be frivolous - and usually dealt with substantive or relevant issues.

In their review of the final version of the plan, which Domtar began to submit to MNR in portions starting on January 15, 2008, MNR staff discovered that some of the required alterations had not been fully addressed and additional problems were evident.

MNR continued to submit additional required alterations to Domtar while the draft final plan was being reviewed. Between January 15 and January 31, 2008, the 15-day period allotted for

reviewing the final "pre-submission" version of the plan, MNR sent three versions of required alterations to Domtar. The three versions captured required alterations that had been produced when the draft FMP was originally reviewed, required alterations missed during MNR's earlier review of the draft plan, and new comments on the final "pre-submission" version of the FMP. Although the Company did its best to incorporate most of the required alterations, it was becoming evident by January 31, 2008 that it would not be possible to complete all of the required alterations by the plan-approval deadline date (January 28, 2008) and have an approved document in place by the intended starting implementation date of April 1, 2008. Domtar attempted to accommodate many of the additional required alterations up to February 4, 2008, when it submitted its final version of the plan. However, as noted above, not all of the required alterations were fully addressed. The crush of information during the final days of assembling the final version of the FMP, along with the absence of sufficient GIS support at Domtar, contributed to this situation.

Other issues also surfaced during the final submission of the plan related to problems loading the FMP onto MNR's official data portal and corrupted data on the backup DVD disks provided to MNR. There were also questions around whether the plan version submitted to the data portal matched the hard copy version that was supplied to MNR. From the auditors' perspective, there appeared to be a high level of confusion around the submission of the final plan which merited further review prior to MNR approving the plan.

Despite the shortcomings and that not all of the required alterations had been satisfactorily addressed, senior managers at MNR proceeded to approve the uncompleted plan, with an informal agreement with the Company that the deficiencies would be addressed through early amendments to the FMP. Evidence shows that MNR Planning Team members met on February 5, 2008, the same day that the plan was approved, to discuss their approach to identifying the remaining outstanding items, by once again reviewing the FLORA, including the supplementary alterations that had been provided to the Company. It appears that MNR staff were continuing to discover numerous errors with the plan, particularly with the maps, during their review of the final version of the plan.

[The auditors note that another list of required alterations was provided to the Plan Author on February 29, 2008 listing the results of the review of the final "pre-submission" version of the 2008 FMP completed by MNR staff from January 15 to February 28, 2008, with several alterations being written after the 2008 FMP had been approved by MNR on February 5, 2008.]

While adequate resources, for the most part, appear to have been allocated for production of the 2008 FMP, the transition in SFL Holders that occurred during the middle of the planning process (early 2007) impacted plan preparation, particularly in terms of GIS support. This was especially evident during preparation of the final version of the plan for delivery to MNR, where a number of issues were uncovered with respect to the quality of information portrayed on maps produced for the FMP. For example, AOC's had been incorrectly mapped or labelled, some renewal and tending blocks had not been correctly portrayed, the data related to high potential cultural heritage AOCs may have contained several errors (therefore mapped incorrectly), there were inconsistencies in mapping and labeling of water crossings, etc. The number of mapping related issues was quite lengthy, however, despite these shortcomings, MNR approved the plan. The auditors determined that the final version of maps that were provided to the public as part of the final plan inspection, in fact, contained numerous flaws.

There is evidence that suggests that senior Company and MNR staff envisioned that the correcting amendment would be submitted within a month after the 2008 FMP implementation

date of April 1, 2008. Documentation shows that the outstanding issues were not addressed until Amendment #13 was submitted to MNR on April 7, 2009, 14 months after the 2008 FMP was approved on February 5, 2008. Interviews with MNR staff suggest that not all of the issues that remained outstanding at the time of approval have been fully corrected, and that further amendments are required to finally address the remaining issues. Amendment #13 was not approved by MNR until January 11, 2010 – almost two years after the final version of the plan was to have been approved.
Conclusion: The final plan that was submitted contained numerous shortcomings and not all of the supplementary required alterations were addressed. The auditors believe that the mapping and other deficiencies with the final version of the FMP were sufficiently serious to warrant MNR to consider delaying approval of the plan and/or instructing the Company to prepare a Contingency Plan until the deficiencies were corrected. The MNR had essentially approved a plan that was unfinished in many respects, and which was provided to the public for review. Although the unfinished matters did not affect the sustainability of the plan, the auditors believe it is important that the public be presented with a complete plan, free of any caveats. The incomplete maps did lead to one issue being raised by the public. While the Company was clearly anxious to have an approved plan in place by April 1, 2008, so that operations could continue on the Forest, MNR appears to have fully shared this same anxiety to the point where an incomplete plan with numerous errors in it was approved. The appearance to the auditors is that MNR managers succumbed to the pressures of timing in the planning process and expediency became a key factor in decision making. During the depths of the economic recession, with mills closing monthly, it is easy to understand the source of the anxiety. Yet neither MNR nor the Company ever discussed the potential for a contingency plan or other arrangement that may have provided the time required to properly complete the FMP.
Recommendation: MNR District Managers shall not recommend approval of FMP's with unresolved required alterations and/or other deficiencies and Regional MNR shall not approve such FMPs. Formal approval shall only be given once all required alterations have been addressed, and the certification page shall include certification that the FMP is complete and accurate.

Recommendation #8
Principle 3: Forest Management Planning **Criterion 3.9: FMP or Contingency Plan Amendments & 3.10: Annual Work Schedules** **Procedure 3.9.1.1:** Review the FMP ... amendment to assess whether adequate documentation existed for all amendments consistent with the applicable FMPM, including whether the ... amendments were prepared by the plan author/ certified by an R.P.F. ...
Background Information and Summary of Evidence: A sample of amendments was examined and shown to have included the appropriate documentation for the most part (requests included a brief description and the need and rationale for the amendment, including a discussion of its significance), including maps, tables, and amended text when necessary. The auditor's review of the amendments confirmed that they were consistent with objectives of the appropriate FMP. All amendment requests were prepared by a Registered Professional Forester, but not necessarily by the Plan Author, as is required by both the 2004 and 2009 FMPM's. This deviation from the FMPM has been brought to the Company's attention by MNR. There was also one case where the FMP amendment had not been stamped by a Registered Professional Forester. The auditors' examination of the title, certification, and approval page for each of the five AWS' prepared during the audit period revealed inconsistencies with the requirements of the FMPM, i.e., the AWS' are to be certified by the Plan Author. This was not the case for four out of the five AWS' that were prepared during the audit term. The auditors were informed that MNR has advised the Company and Plan Author regarding this deviation from the FMPM requirements and both parties have acknowledged that they will correct the situation.
Discussion: The requirement to have AWS's certified by the Plan Author was not met for most of the AWS's prepared during the plan term. Although this oversight did not affect management of the Forest, it is contrary to FMPM requirements.
Conclusion: Both the 2004 and 2009 FMPMs require that the plan author prepare and certify AWS' and amendments and this is not always done.
Recommendation: The plan author will prepare or supervise the preparation of all Annual Work Schedules and certify each of them, and prepare and certify all amendments to the FMP.

Recommendation #9
Principle 3: Forest Management Planning **Criterion 3.9: FMP or Contingency Plan Amendments** **Procedure 3.9.1.1:** Review the FMP ... amendment to assess whether adequate documentation existed for all amendments consistent with the applicable FMPM, including whether the ... approved amendments have been recorded in a master list at the front of the FMP as required of the applicable FMPM ...
Background Information and Summary of Evidence: Amendment requests and approved amendments have been recorded in a master list which was located at front of the appropriate FMP (both Domtar and MNR Thunder Bay copies) as required. The master list provides a brief summary of each amendment, including when the request was received by MNR, a brief description, and the approval date. The auditors found that the master amendment lists maintained by Domtar for both the 2003 and 2008 FMPs had not been updated to match the records maintained by MNR. With the introduction of the 2009 FMPM, the master amendment list is now maintained on-line on the MNR public website. In reviewing amendments posted there, the audit team observed that the signature pages that are on-line are unsigned versions.
Discussion: A person accessing the amendment cannot tell from the approval page posted on the Portal if the amendment was approved and when, and it appears to the audit team that the intent of the FMPM is to post approved amendments on line.
Conclusion: While not a major concern, the audit team is of the opinion that it would provide the public with more complete information if signed signature pages were included with the on-line version of the amendments.
Recommendation: Corporate MNR shall ensure that the publicly available documentation associated with plan amendments includes a copy of the amendment approval page with all approving signatures & showing the approval date.

Recommendation #10
Principle 4: Implementation **Criterion 4.3: Harvest** **Procedure 4.3.1:** Review and assess in the field the implementation of approved harvest operations. Include the following ... Residual stand structure required of the FMP including individual residual tree retention and downed woody material ...
Background Information and Summary of Evidence: During the site inspection, the auditors observed that the number of residual individual and clumped trees was often somewhat less than required. The NDPE Guide requires that an average of 25 well-spaced trees be left per hectare harvested, of which six must be large, living cavity (or potential cavity) trees. The remaining 19 or more trees should be broadly representative of the stand that is being harvested. The auditors estimated that the Company tended to leave between 17 – 20 residual trees, and few of these were mature softwood trees. This ocular estimate was similar to MNR estimates. The auditors note further that retention of residuals was identified as an issue in the 2000 IFA and in the 2005 IFA. There were three recommendations made on the issue in the 2005 IFA – that the Company should ensure that its contractors leave sufficient residuals on site, secondly that MNR should enforce the residual retention requirements, and thirdly that the Company must report on its progress in residual retention in the Annual Reports and in future FOIP harvest reports. A review of subsequent AR's did not uncover any tracking of residual retention however FOIP reports prepared since April 1, 2009 report plot numbers on a regular basis. Prior to that, snag monitoring was hit and miss - in some cases the Company only conducted visual assessments or relied on the word of the contractors that the snag retention guidelines were met. There also appeared to have been some confusion over the retention requirements in 2008 since one FOIP report states that the requirements were met, when clearly the average no of trees/plot was 20 (see Inspection #305055). A review of the more recent FOIP reports indicate that the Company continues to have variable results, with a number of blocks still coming in well below NDPEG requirements (e.g. see FOIP reports # 422084 & Issue # 219702).
Discussion: Maintenance of residual trees is an important component of the emulation of natural disturbances upon which the ecological context for forest management in Ontario is based. The requirement for maintaining residual trees applicable to the FMP is clearly laid out in MNR's Forest Management Guide for Natural Disturbance Pattern Emulation. The Company has a long record of consistent underachievement in meeting this requirement, however since 2009 there has been improvement. However, on other forests in the province, this requirement has readily been mastered and it is not clear why there has been consistent underperformance in this area on the Wabigoon Forest.
Conclusion: Since this aspect of harvesting has been the subject of recommendations in three consecutive IFA's, this strongly suggests to this audit team that the Company does not place a high priority on complying with the residual retention requirements.

Recommendation: Domtar shall take the necessary steps to bring its harvesting operations into compliance with the residual retention requirements, and MNR shall closely monitor the Company's performance and impose monetary and other penalties for non-compliances encountered after April 1, 2012.

Recommendation #11
Principle 4: Implementation **Criterion 4.3: Harvest** **Procedure 4.3.1:** Review and assess in the field the implementation of approved harvest operations. Include the following ... whether harvest operations were conducted to minimize site disturbance taking soil and weather conditions into account ...
Background Information and Summary of Evidence: The auditors observed that a number of harvest blocks displayed an unacceptably high level of site damage caused by machinery operating in unsuitable conditions, i.e. tire rutting in water-saturated soils. Such damage has the potential to disrupt the productive capacity of the sites affected and should be addressed. The sites where notable site damage occurred were concentrated along the Timex and Seiko Roads, where there are more clay soils and more difficult terrain than on the majority of the management unit. Significant soil damage was observed at an unscheduled helicopter tour stop on a 2009 harvest area near the Timex – Seiko Roads, where the ruts were up to 3 or 4 feet deep and about 10% of the site was rutted, according to the consensus of the 3 people in the helicopter. On other blocks along the Timex Road, operators had worked too close to black spruce lowlands or on lower slopes and created patches of rutting that were larger than the 30m x 30m tolerance level the Company has established in its SOP. In addition, the audit team saw some isolated instances of soil erosion associated with roads constructed on slopes with fine sands (outwash and dunes).
Discussion: Much of the forest is upland and not susceptible to rutting, and perhaps the relatively low proportion of low ground sites means that operators lack the necessary experience to avoid rutting in some circumstances.
Conclusion: There were sufficient examples of soil damage that a recommendation has been issued in this regard. The audit team believes that with more effort and attention directed at this issue, the extent of site damage can be significantly reduced.
Recommendation: Domtar shall take necessary steps to ensure that operations on the Forest do not cause site damage.

Recommendation #12
Principle 4: Implementation **Criterion 4.3: Harvest** **Procedure 4.3.1:** Review and assess in the field the implementation of approved harvest operations.
Background Information and Summary of Evidence: The Company processes a large proportion of its timber harvest by chipping it at roadside. The design of the chipper is such that considerable amounts of chips and woody debris became scattered around the machine and the chip van. These chipper debris piles can become quite large and deep, since the approach is to minimize the number of times the chipper is moved and set up. The debris piles are unsightly and the Company has been spreading them out, however the thickness of the spread-out piles is often still at least 18 – 24 inches, and the area occupied by the debris becomes larger. These areas are difficult to regenerate, in part because the debris forms a physical barrier and also because the chips emit substances that impede the growth of planting stock and often kill it.
Discussion: Managing chipper piles is a challenge, because they are difficult to burn and expensive to spread out to the extent that they do not hinder renewal. Nevertheless, a considerable amount of area experiences a renewal delay of a couple of decades or so, which reduces the productive capacity of the Forest.
Conclusion: The Company should take additional measures to either remove the piles or mitigate their suppressing effect on renewal, or it should alter the way the chipping operation is conducted in order to prevent the formation of these large piles.
Recommendation: Domtar shall improve the management of chipper piles to reduce the amount of productive area on which renewal is delayed by the presence of the piles.

Recommendation #13
Principle 4: Implementation **Criterion 4.3: Harvest** **Procedure 4.3.1:** Review and assess in the field the implementation of approved harvest operations.
Background Information and Summary of Evidence: A blowdown occurred near a camp located off Barry's Road, which is off Hwy #622 (Bending Lake Road), and it blew down timber on Crown land as well as on a parcel of patent land on which a camp was located. The Company wished to set up its chipper on the patent land, since this was a central location and was also a relatively flat area. The Company promised the camp owner that it would leave the site in good condition, and Domtar staff did return to remove some of the chipper pile, however the auditors observed that it was not cleaned up very well. MNR staff observed that Domtar had simply moved some of the chipper debris into the Crown portion of the harvest block. The harvester also left significant ruts in the poorly drained parts of the blowdown area. The whole area, including the patent land area, was planted, mostly to spruce. Unfortunately, the plantation experienced almost 100% mortality due to stock handling problems (and the trees on both the patent area and the Crown land were largely dead). The camp owner was unhappy with the Company's refusal to more thoroughly clean up the chipper site and the landowner was also under the impression that the Company had told him it would not replant his land when it returned to replant the site.
Discussion: Two members of the audit team viewed the site and agreed with the owner that the chipping site was still messy and that the majority of the planted stock was dead.
Conclusion: The audit team thinks that the Company should make a greater effort to respect the landowner's assistance to the Company and clean up the chipper site and replant the patent land area as well as the Crown land.
Recommendation: Domtar shall rectify the condition of the chipper pad on the camp owner's patent land area and ensure that it replants the relevant areas of the property.

Recommendation #14

Principle 4: Plan Implementation

Criterion 4.4: Renewal

Procedure 4.4.1: Review and assess in the field the implementation of approved renewal operations. Include the following ... consider whether there are any gaps between the planned and actual levels of each type of renewal activity seen in the field; consider results of determination under criterion 6.

Background Information and Summary of Evidence:

During the 2003 FMP term, there was a shortfall in the total regeneration area compared with the planned level, as shown in the summary below (source: Wabigoon Forest Annual Reports, 2003/2004 to 2007/08). During the term of the 2003 FMP, 90% of the area planned for harvest was completed. To estimate the total obligation for regeneration for the 2003 FMP term, the planned renewal of 32,940 ha can be pro-rated by the actual harvest level of 90%, which equals 29,646 ha. This results in a shortfall in total regeneration area of approximately 3,012 ha. Note that the actual area may be greater, depending on the amount of area requiring treatment which was carried over from previous FMP terms. The natural regeneration area exceeded the forecast area, and therefore, the shortfall is entirely due to a reduction in artificial renewal treatments.

Renewal	2003 FMP 5-yr actual area	2003 FMP forecast area	2003 FMP actual/ forecast
Natural Regeneration	9,573	9,253	103%
Artificial Regeneration	17,061	23,687	72%
Total Regeneration (Even-aged)	26,634	32,940	81%
Site Preparation			
Mechanical	14,630	14,610	100%
Ground	2	580	0 %
Slash Pile Burning	541	1,638	33 %
Total Site Preparation	15,173	16,838	92%

In the Trend Analysis, Domtar indicated that the reduction in artificial regeneration was partly due to cost saving measures implemented by the Company during the difficult economic conditions that were experienced during the FMP term. Mechanical site preparation levels corresponded closely to the planned levels and were sufficient to meet the requirements of the artificial renewal program that was implemented. In the first two years of the 2008 FMP term, the total renewal area is 11,203 ha, or 87% of the planned level of 12,851 ha (source: Wabigoon Forest draft Annual Reports, 2008/2009 to 2009/10). The harvest area from 2007 and 2008, which would correspond approximately to the area available for silviculture for 2008 and 2009 (but not including any backlog from prior years), equaled 11,220 ha. This indicates that the Company has not yet progressed towards making up the shortfall from the 2003 FMP period.

Discussion:
To meet its FMP obligations, Domtar should ensure that all the area harvested during the 2003-

2008 period, and any backlog of renewal arising from prior FMP terms, receives appropriate regeneration treatments. Domtar has conducted surveys of the areas in question and has developed a preliminary plan to address the regeneration of these areas. Time is of the essence since regeneration of some sites to the appropriate silvicultural standards will become more difficult and expensive over time, e.g., as competing vegetation develops on richer sites.
Conclusion: The Company did not implement treatments on approximately 3,000 ha of area which was slated for artificial regeneration during the 2003 FMP period. Because the 2003 and 2008 FMPs rely heavily on successful artificial renewal to meet future harvest requirements, the audit team is concerned that these shortfalls (in conjunction with the low level of implementation of PCT discussed under Recommendation #15) will affect the achievement of future yields on the Wabigoon Forest.
Recommendation: Domtar shall ensure that all of the area harvested during the 2003 FMP period, plus any backlog of area requiring renewal which was carried over from prior FMP terms, receives appropriate regeneration treatments by December 31, 2014.

Recommendation #15

Principle 4: Plan Implementation

Criterion 4.5: Tending and Protection

Procedure 4.5.1: Review and assess in the field the implementation of approved tending and protection operations. Include the following ... consider whether there are any gaps between the planned and actual levels of each type of tending and protection activity seen in the field; consider results of determination under criterion 6.

Background Information and Summary of Evidence:

For the 2003 FMP term, there was a 56% shortfall in the total area that received pre-commercial thinning compared with the planned level, as shown in the summary below (source: Wabigoon Forest Annual Reports, 2003/2004 to 2007/08). This translates to a shortfall of more than 1500 ha.

Tending Activity	2003 FMP 5-yr actual area	2003 FMP forecast area	2003 FMP actual/ forecast
Pre-Commercial Thinning	1,177	2,703	44%

In the 2008 FMP, an average annual pre-commercial thinning area of 1,091 ha was forecast (see Table in section 3.7.5 of the FMP). The 2008 FMP forecast an average annual area of 655 ha of PCT, and in the first two years of the FMP period, only an average of 159 ha/yr was pre-commercially thinned.

Discussion:

Forecasting the amount of area that is to be pre-commercially thinned over a five or ten-year plan period is challenging, because it depends in part on the amount of area that is eligible. Domtar has undertaken an economic analysis of pre-commercial thinning and concluded that it only yields a positive economic return when there is an initial density of at least 9,000 stems per hectare. Domtar has recently reduced its seeding density from 50,000 to 35,000 seeds/ha in an effort to avoid creating high density young stands that will need PCT, however this shift will not affect the amount of area becoming available for PCT for about 15 years.

The Company has relied on First Nations people to undertake the PCT. The work is physically demanding and the Company feels that the First Nations who are already undertaking the work are operating at full capacity. This suggests that the rates of pre-commercial thinning that are being achieved are close to the maximum feasible levels under current conditions. Casting a broader net for pre-commercial thinning crews might increase Domtar's capability but this would likely come at a higher cost.

The 2003 and 2008 FMPs were both based on levels of PCT well above those presently being undertaken. During the 2003 FMP period, an average of approximately 250 ha/yr were spaced, while 400 ha/yr were spaced during the period of the five year term of the previous IFA (2000-2005). These figures suggest that 250 to perhaps 400 ha/yr is the upper capacity of the local work force. While the most important result is that the anticipated number of renewed hectares

move to the yield curve forecast in the FMP, and this may in fact be happening, by forecasting an unrealistic level of PCT, the FMP may be over-stating the area of future forest that is intensively managed.
Conclusion: The 2008 FMP forecasts a level of PCT that seems to be beyond local capacity and is therefore unrealistic. The previous IFA (2000-2005) included a recommendation for the company to review its spacing program to ensure that the levels being implemented were adequate to meet plan objectives. Given the concerns described above, it appears that this recommendation has not been adequately addressed, thus it is reiterated here.
Recommendation: Domtar shall review its spacing program to assess whether an adequate amount of area is being treated to meet the 2008 FMP objectives, and depending on the results of this analysis, shall alter the area being treated with PCT or equivalent treatments, as necessary.

Recommendation #16
Principle 5: System Support **Criterion 5.1: Human Resources** **Procedure 5.1.1:** The organization's human resources ... must support sustainable forest management.
Background Information and Summary of Evidence: The Company's staffing levels on the Wabigoon Forest appeared to create gaps between what needed to be done and what could feasibly be done. The auditors felt that the lengthy delays in developing the amendment to correct the errors and uncompleted required alterations in the 2008 FMP, the lack of complete and accepted ARs, the delays in submitting FOIP reports and some of the issues observed in the field are due in part to insufficient staffing, as well as disagreement between the organizations, in some cases.
Discussion: The Company was very cost conscious during the audit period and especially after the economic pullback in 2008 and 2009. This consciousness affected a number of areas of operations and it is no surprise that the same priorities appeared to be evident with respect to staff complement.
Conclusion: The Company's staffing situation played a role in the issues that arose during this audit, including many of the most important issues. For this reason, a recommendation has been issued.
Recommendation: Domtar shall increase its staff complement on the Wabigoon Forest.

Recommendation #17
Principle 6: Monitoring **Criterion 6.1: District Compliance Planning and Associated Monitoring** **Procedure 6.1.1:** Review the MNR District Compliance Plan ... to determine how forest management activities were to be monitored for compliance by MNR and assess whether the actual level of the overall monitoring program was in accordance with the FMP/plans and whether it was appropriate ...
Background Information and Summary of Evidence: MNR District staff conduct verification inspections of Domtar's compliance inspections, inspections of water crossing construction activities, and spot checks for adherence to CFSA and other applicable legislation (e.g., forest fire prevention regulations). The level of oversight could be characterized as sub-standard. There are several reasons underlying this conclusion. Some MNR staff informed the audit team that they believe they are not monitoring often enough and members of the LCAC also expressed a similar concern. This perception may reflect the diminished budgets being experienced by MNR, and other MNR staff reported that they are learning how to cope with the reduced funding by prioritizing their monitoring efforts. A second piece of evidence is that comparisons of the actual number of inspections being conducted versus MNR's work schedules demonstrate a consistent shortfall. The audit team also discovered that there are some harvest blocks that are not ever inspected, contrary to provincial direction, and the audit team also observed sites where non-compliances had not been reported – primarily by Company inspectors but also by MNR inspectors. MNR is also behind in its submission of compliance inspection reports; many are not being submitted within the required timelines. At the time of the field audit, there were 103 "tasks" or unresolved issues and/or "open" non-compliance reports, requiring attention/resolution (21 of which were overdue for action), according to the FOIP database.
Discussion: Evidence gathered through the audit team's inspection of field sites and review of compliance reports suggests that the level of monitoring being conducted by MNR is insufficient to ensure that the SFL Holder and its contractors are meeting the legislative requirements and their obligations.
Conclusion: These findings support the conclusion that MNR's resources for meeting its compliance monitoring obligations are insufficient. This may require a re-allocation of District resources, an increase in resources, or an alternate solution.
Recommendation: Dryden District MNR shall find avenues for sufficiently increasing its compliance monitoring effort in order to meet its annual targets and take immediate steps to follow-up with Domtar and take appropriate cooperative actions to close all outstanding compliance issues and tasks.

Recommendation #18
Principle 6: Monitoring **Criterion 6.1: District Compliance Planning and Associated Monitoring and 6.2: SFL-Holder Compliance Planning and Monitoring** **Procedure 6.1.1:** Review the MNR District Compliance Plans ... to determine how forest management activities were to be monitored for compliance by MNR and assess whether the actual level of the overall monitoring program was in accordance with the FMP/plans and whether it was appropriate ...
Background Information and Summary of Evidence: Noticeable instances of site damage were not documented in the Company's compliance reports In particular, the auditors observed situations where there was site damage caused by machinery operating in unsuitable conditions, i.e. tire rutting in water-saturated soils. Such damage has the potential to disrupt the productive capacity of the sites affected and should be prevented. While site damage was identified in a couple of compliance reports as a non-compliance, both Company compliance inspectors and MNR inspectors were not as diligent in reporting site damage as they should have been. The auditors observed site damage on at least several blocks where it was not reported in the compliance reports.
Discussion: Since both MNR and Domtar compliance inspectors missed identification of unacceptable levels of site damage on some blocks, there is a need for both organizations to revise their standards in this regard. This is something that would normally be best done jointly. The auditors note that there are no targets listed in MNR's compliance work schedule to conduct annual compliance meetings with the SFL holder. Meetings with the SFL-holder are beneficial for reviewing / discussing forestry operational activities as they relate to compliance, exchanging information, developing new or amend existing protocols / policies / procedures, etc. Such meetings may also help in improving communications and discussing matters related to interpreting the seriousness of non-compliances discovered in the field, which has been an issue of contention at times between MNR and Company inspectors. The auditors believe this is a missed opportunity to ensure that Domtar receives a consistent message from MNR on compliance matters.
Conclusion: Joint meetings to calibrate understanding of compliance issues would be useful in addressing issues related to site damage and other possible compliance infractions.
Recommendation: Domtar and Dryden District MNR shall work jointly to ensure that compliance inspectors improve their recognition of site damage and other compliance infractions.

Recommendation #19
Principle 6: Monitoring **Criterion 6.2: SFL-Holder Compliance Planning and Monitoring** **Procedure 6.2.1.1:** Determine whether ... the actual level of the implemented overall monitoring program is appropriate and effective ...
Background Information and Summary of Evidence: MNR Forest Compliance direction was revised a number of times during the audit period, with revisions to the Forest Compliance Handbook in 2007 and a new version produced in 2008. Thus, while policy shifted somewhat throughout the period, MNR policy direction required the Company to lead in the implementation of a compliance program, with MNR undertaking review and monitoring of Company effectiveness. The 2008 MNR Forest Compliance Handbook (MNR Procedure FOR 07 03 05, page 3) states that "*Forest industry has the lead in providing initial inspections for compliance. As such, they are required to complete and submit inspection reports on all operations.*" There was confusion around whether each block was considered an operation, and whether separate compliance inspections and reports were required for each block. However, Domtar's Ten-Year Compliance strategy in the 2008 FMP (Supplementary Documentation 20) stipulates on page 9 that "Compliance reports are filled out whenever an activity is completed on a block." and again on page 12 "*Harvest blocks will be submitted individually as identified in the FMP.*" The auditors were presented with evidence that some harvesting blocks were not inspected during the audit term and also heard evidence that Company staff may be having problems keeping informed about the state of operations in some instances. For example, MNR staff are finding bundles of merchantable wood being left within harvest blocks unbeknownst to the Company. The auditors believe that this lack of knowledge is likely attributable to the lack of compliance monitoring staff on the Company's part, as well as changeovers in Company staff during the audit period. This condition is contrary to MNR's directive under the new 2010 Forest Compliance Handbook, which requires that "SFL holders must ensure that their inspection program obtains sufficient information to effectively determine the compliance status of the activities." Domtar is currently in the process of having two additional staff trained which should help in remedying this situation.
Discussion: While the apparent rates of non-compliance reported on the Wabigoon Forest seem low, neglecting to inspect blocks introduces the risk that some non-compliances were overlooked. In addition, neither the Company nor MNR compliance inspectors are assigning non-compliance findings to some incidences of rutting (See Recommendation #18) and low retention of residuals (See Recommendation #10).
Conclusion: There are indications that Domtar's compliance monitoring system has some potentially significant gaps and may not be collecting sufficient information to be able to effectively determine the compliance status of its activities.
Recommendation: Domtar shall develop a tracking system to ensure that all operations are inspected for compliance, in accordance with requirements of *The 2010 Forest Compliance Handbook* and Domtar's Ten-Year Strategic Compliance Plan.

Recommendation #20
Principle 6: Monitoring **Criterion 6.2: SFL-Holder Compliance Planning and Monitoring** **Procedure 6.2.1.3:** Determine whether the FOIP reports have been submitted electronically to the MNR database ... in accordance with requirements including timelines ...
Background Information and Summary of Evidence: Requirements to notify MNR of its impending operations were not being regularly met by the Company during the early years of the audit term. The Company is currently evaluating a new notification process which appears to be more reliable, according to MNR sources. Timeline requirements for submitting compliance reports through the FOIP system are not being met in a consistent manner – a deficiency recognized by Company staff and confirmed by MNR.
Conclusion: The auditors expect the Company to improve the timeliness of the submission of its FOIP reports by making the following recommendation.
Recommendation: Domtar shall ensure that all compliance reports and required notifications are submitted within the timeframes prescribed in the Forest Information Manual and MNR policies.

Recommendation #21

Principle 6: Monitoring

Criterion 6.5: Annual Reports

Procedure 6.5.1: Examine the annual reports for the term of the audit and assess whether the text, tables and maps including digital information is accurate, complete and in accordance with the applicable requirements ...

Background Information and Summary of Evidence: The 2007-08 AR stated that the volume of timber reported as being harvested during that year was significantly below the correct amount. Table 2 in the 2007-08 AR reported that 472,390 m^3 had been harvested during that year, which is well below the reported volumes in the first three years of the plan period (between 857,000 and 948,000 m^3/year). The volume harvested during year 4 tailed off to 756,046 m^3. What is striking is that the harvest area in 2007-08 was 5,833 ha, which was about 100 ha more than the average annual harvest during the five years.

In response to a request from the auditors, MNDM&F regional scaling staff provided updated records of the harvest volume for each year, and there was a meaningful increase in the reported harvest volume for 2007-08 (it increased from 472,000 to 566,000 m^3), but it remained well short of the level one would expect. Wood measurement staff provided a number of reasons why the volume reported in the AR might not be the "final" value, and the auditors do not have a concern with the magnitude of the revision. However, the revised volume translated into an average yield of 97 m^3/ha, which is well below the average of 164 m^3/ha obtained during the first three years of the plan period (using the revised volumes), and below the planned yield of 157 m^3/ha.

The scaling staff at the Company and MNDM&F provided a wide range of reasons why the volume reported by the MNR will be different than the volume received by the Company, however the audit team is not comfortable that the revised harvest volume number eliminates the original concern. Similarly, when MNR District and Company staff investigated the issue, they were unable to account for the difference with any certainty.

Discussion:
Several potential explanations for the low yield have been offered:

1. The Company harvested the best stands during the first three years of the 2003 FMP, and harvest quality dropped off in 2006-07 and even more so in 2007-08.
2. Blocks that were partially harvested in the early years of the plan period and were completed in the last plan year may have only been reported as harvested area when the full depletion was completed. This would inflate the harvest area and lower the harvest yield in the last year of the plan.

Both of these explanations seem to be at some variance from the initial Company contention that more wood had been harvested, since one would assume that the Company would have a good sense of the volumes that had been harvested and any mitigating factors that might have come into play to result in a low yield.

On the other hand, there may be an error in the system somewhere (e.g. a record may have been missed, mis-typed or assigned to the wrong forest, for example). It is also possible, in theory, that the harvest area is overstated. The auditors have never encountered a similar situation where what is flagged as a major discrepancy has not been resolved by joint Company-MNR investigation.
Conclusion: The audit team is very uncomfortable with the large apparent discrepancy and the fact the no one is able to explain it. The audit team considers that there is a reasonable chance that there has been an error that has crept into the system, since none of the explanations that have been offered are convincing.
Recommendation: Dryden District MNR and Domtar, with MNDM&F, shall check the records associated with the harvest volume and area in the 2007/08 fiscal year to confirm that the reported amounts are accurate or else provide a revision.

Recommendation #22
Principle 6: Monitoring **Criterion 6.5: Annual Reports** **Procedure 6.5.4:** Review whether the MNR took the opportunity to review the annual report for completeness and accuracy, whether the plan author addressed any resulting comments, and if a revised report was submitted.
Background Information and Summary of Evidence: Of the five Annual Reports prepared during the audit period, only the 2007-08 AR has been accepted by MNR. MNR District staff took the opportunity to review the ARs and have sent back lists of corrections to the Company. In the case of the 2006/07 AR, the Company submitted the draft and MNR sent back a list of comments. Some time later, when there was work being done on the Forest Information Portal, the Portal sent out a number of erroneous confirmation messages and so the Company thought the AR had been accepted. MNR discovered this when following up on the status of the revisions, and informed the Company that they were still looking for revisions, however these have not been sent to MNR. In the case of the 2008/09 AR, the MNR has four times sent lists of corrections to the Company, which has made a number of the corrections but there are many outstanding. As an example, in the case of the 2008/09 AR, there have been a total of 83 comments, of which 26 have been partially addressed, 30 are considered addressed, and 20 are considered not addressed. The remainder are either new comments that were missed in previous reviews or were not classified. Many of the issues identified appear to be due to GIS deficiencies, including mis-named or mis-typed operational features, especially roads and water crossings, as well as inaccurate mapping and designation of harvest block boundaries and residual patches.
Discussion: This situation is another example of the poor relationship between the MNR and the Company in action. The audit team agrees with MNR's current approach in that the 2005/06 and 2006/07 AR's are essentially going to remain unaccepted and in draft, and the focus is on correcting the ARs associated with the most recent FMP. The audit team observes that some of the newly added comments appear to be of minimal significance, and suggest that the MNR should show more restraint when considering the addition of further comments after the initial review. While any major overlooked errors should be pointed out, it must surely be dispiriting for Company staff to be in essence faced with a continuous review.
Conclusion: The Company and MNR should develop an acceptable approach to review and revision of the Annual Reports so that this on-going friction can be eliminated; higher quality initial submissions would also help in this regard.
Recommendation: Domtar and Dryden District MNR shall work together to finalize the 2008/09 and 2009/10 Annual Reports so that they can be accepted by MNR.

Recommendation #23

Principle 8: Contractual Obligations

Criterion 8.1.2: Wood supply commitments, MOAs, sharing arrangements, special conditions

Procedure 8.1.2.1: Determine whether wood supply commitments and any special conditions have been complied with ...

Background Information and Summary of Evidence:
During the term of the audit, the Company's SFL had four wood supply commitments associated with it. One of these commitments was to supply softwood to the AbitibiBowater[18] mill in Thunder Bay and a second was to supply conifer to AbitibiBowater's mills in Kenora and Fort Frances[19]. These commitments were both from the combined Wabigoon and Trout Lake Forests, which are both licensed to Domtar. The commitments and levels of achievement during the audit period are shown below.

Metric	Destination Mills	
	Thunder Bay	*Kenora /Fort Frances*
Appendix E Commitment Volume (m3/year)	200,000	186,000
From Wabigoon 2005	187,000	23,000
From Trout Lake 2005	853	12,000
From Wabigoon 2006	110,000	2,000
From Trout Lake 2006	0	0
From Wabigoon 2007-10	0	439
From Trout Lake 2007-10	0	0

The table above indicates that virtually no wood from either the Wabigoon or Trout Lake Forests went to any of the three AbitibiBowater mills after 2006. When the Company first idled its second paper machine (machine #D2) in December 2007, it declared that its Dryden facility required all of the conifer from the Wabigoon and Trout Lake Forests. Domtar staff informed AbitibiBowater of this at a meeting on January 22, 2008, and confirmed it in correspondence dated February 4, 2008.

As has been mentioned in many places in this report, the forest industry experienced severe distress during the audit period, especially from 2007 onwards as many mills closed. Domtar suggested some alternate ways for AbitibiBowater to source softwood from other forests, and an agreement was developed to provide AbitibiBowater with timber from the Lake Nipigon Forest. This fibre was available to Domtar through its commitment from that forest to supply the White

[18] The Company has recently been re-named AbiBow Canada Inc.
[19] The Kenora facility has been closed permanently since 2006, however because the commitment covers both the Kenora and Fort Frances mills, and does not specify how much wood should go to each mill, Domtar appears to be obligated to supply the full commitment volume to the Fort Frances mill if AbitibiBowater wishes to use the timber.

River sawmill, which closed for an extended period in 2007. Some wood flowed to AbitibiBowater's Thunder Bay complex under this arrangement but AbitibiBowater did not feel that the agreement worked effectively and it was not renewed beyond the initial year. Annual reports from the Lake Nipigon Forest indicate that only 22,647 m^3 of conifer went to AbitibiBowater Thunder Bay in 2008/09, and none to Fort Frances. Domtar sold the White River sawmill in June 2009, and in 2009/10 and 2010/11, AbitibiBowater Thunder Bay received 101,518 m^3 and approximately 80,000 m^3, respectively.

Discussion: The Wabigoon Forest is the lowest cost source of wood for the Dryden mill, it is easy to understand Domtar's motivation to use as much wood from the Wabigoon Forest as possible in Dryden. Nonetheless, the commitment is also important for AbitibiBowater and during the audit period it was a condition of the SFL that Domtar make the wood available if AbitibiBowater wanted it, which correspondence clearly indicates that they did. Domtar's efforts to find an alternate solution could not get around the fundamental reality that the committed wood was desirable to both companies. As a result, the audit finds Domtar to be out compliance with its commitments to supply AbitibiBowater from the Wabigoon and Trout Lake Forests. The audit team considers this to be a serious non-compliance.

The issue seems to have been most serious for the Thunder Bay complex; since the audit period has ended, the commitment to supply the Fort Frances and Kenora mills has been included within the provincial wood supply competition, and it is reasonable to anticipate that the issue will be resolved through the competition. However, AbitibiBowater retains the commitment to supply the Thunder Bay mill and is anxious to make use of it.

The audit team thinks that the commitment instrument lacks the flexibility to allow companies to rationalize their wood supplies in response to shifts in the markets or changes in industrial demand. While it would seem that the most rational solution to this issue would see the wood go to the lowest cost user, there is also a clear need to recognize the right that AbiBow has. With wood flows in the province experiencing major shifts in recent years due to mill closures, the provincial wood supply competition and changes in relative product prices and production mixes, the audit team feels that there should be an opportunity to revise the wood supply arrangements in a manner that works better for both companies than the current arrangement.

Recommendation:
Domtar shall immediately discuss with AbiBow how Domtar can become compliant with all current commitments in its Wabigoon and Trout Lake SFLs to supply AbiBow with conifer timber and MNR shall invite the Ministry of Northern Development, Mines and Resources to work with both Companies to find a long-term solution that better serves both.

Recommendation #24
Principle 8: Contractual Obligations **Criterion 8.1.3: Preparation of FMP, AWS, and reports; abiding by the FMP, and all other requirements of the FMPM and CFSA** **Procedure 8.1.2.1:** Refer to Criteria 2, 3, 4 and 6 and related procedures. Crown Forest Sustainability Act para 29(1): "A forest resource licence that authorizes the harvesting of forest resources is subject to the condition that the amount of forest resources harvested shall not exceed the amount described as available for harvesting in the applicable forest management plan."
Background Information and Summary of Evidence: A Sustainable Forest Licence is a type of Forest Resource Licence, as defined under the Crown Forest Sustainability Act. Paragraph 29 of the CFSA states that "A forest resource licence that authorizes the harvesting of forest resources is subject to the condition that the amount of forest resources harvested shall not exceed the amount described as available for harvesting in the applicable forest management plan." Table 1 in the 2007/08 Annual Report indicated that over the 2003 FMP term, the Company harvested 104.4% of the planned harvest area in the mixed jack pine (PjMx) forest unit and 105.0% of the planned area in the pure jack pine (PjPrd) forest unit. The total harvest area in these two forest units was 4682.8 and 2942.7 ha, respectively, which exceeds the Allowable Harvest Areas for the two FUs of 4504.5 ha and 2820.4 ha, respectively. Thus, the reported additional harvest was 178 ha for the PjMx forest unit and 122 ha for the PjPrd forest unit. This overcutting was clearly presented in the Annual Report yet seems to have occasioned no response from MNR, and this is in fact the one AR from the audit period that has been accepted by MNR. In response to the audit team's enquiries, the Company reviewed its figures and found that there had been errors in totaling the areas and the revised harvest area in the PjMx was below the AHA, while the PjPrd harvest area remained above the AHA. The Company attributed the overcut to additional 116 ha of PjPrd area that was amended into the plan (Amendment #40) and no one made the appropriate assessment that this would put the Company in an overcut situation. The Company pointed out that the amendment had been approved by MNR and so the Company did not harvest area that was not permitted, however this argument evades the point that the approved normal harvest area (i.e. excluding salvage) is not allowed to exceed the AHA.
Discussion: While the amount of the overcut is not large, the AHA threshold has been crossed and the Company is out of compliance with the CFSA as a result. The audit team observes that it has never encountered this variety of non-compliance before in more than 50 IFA's. The audit team suggests that the following is an appropriate recommendation for this situation.
Recommendation: Domtar and Dryden District MNR shall amend the FMP to reduce the planned harvest of the PJP Forest Unit during the 2008 FMP term by an amount appropriate to compensate for the harvest during the 2003 FMP term that was 122 ha above the Allowable Harvest Area.

Recommendation #25
Principle 8: Contractual Obligations **Criterion 8.1.11: Forest Renewal Trust eligible silvicultural work** **Procedure #24:** determine whether records, including maps, were maintained.
Background Information and Summary of Evidence: The Specified Procedures Assessment (SPA) conducted by KPMG, which was completed for the 2008/2009 fiscal year, identified a number of errors in the company records for that year. A number of expenses related to the Trout Forest (which is also managed by Domtar) were charged to the FRT account for the Wabigoon Forest in error. The approximate total amount was $99,549. It is unknown whether there are similar errors in the FRT account for the Trout Lake Forest, i.e., expenses that should have been allocated to the Wabigoon Forest). Domtar explained that during the 2008/2009 fiscal year, processing of FRT expenses was done through Domtar's central accounting office for northern Ontario, which is located at Timmins (this office is now managed by the Eacom Timber Company). There was no local quality control mechanism in place to ensure that expenses were allocated to the correct account. Our review of the FRT account indicated that all expenses recorded during the audit period were eligible and appropriate, thus the issue is related only to the correct allocation of expenses between Domtar's Forests.
Discussion: The Forest Renewal Trust accounts for the Wabigoon and Trout Lake Forests should be reviewed and any incorrect allocation of expenses should be corrected. Domtar should also develop and implement appropriate quality control procedures to prevent future errors.
Recommendation: Domtar shall immediately review the Forest Renewal Trust accounts for both the Trout Lake and Wabigoon Forests and correct any errors in expense allocations between the two Forests. Within one year, Domtar shall develop and implement an appropriate quality control process for Forest Renewal Trust accounting of the Wabigoon Forest.

APPENDIX 2 – ACHIEVEMENT OF MANAGEMENT OBJECTIVES

Table A2.1. Auditor Review of Achievement of 2003 FMP Objectives and Targets.

Auditor's Note: The data used to assess many of the objectives, especially those related to forest cover and disturbance size by frequency, come from the data presented in the 2008-2018 FMP. Changes in some of the approaches used in the 2008 FMP, compared with the previous FMP, also impact the achievement of objectives in the 2003 FMP that were to be achieved over more than a five year period.

Objective	*Indicator/ Target*	*Status*
Part A: Forest Diversity Objectives		
Maintain or move towards a natural range of forest age classes, including mature /overmature age classes while staying within a socially acceptable range.	Long term targets (100+ years): - Maintain productive forest age class distribution area within each development stage within BNV for site region 4S as in SFMM natural benchmark run - maintain 3% of all forest unit areas in old growth (including managed, unmanaged and park areas) – specific targets in FMP pg 65 - maintain occurrence of rare or old tree species at /above 2003 levels (white spruce, cedar, black ash) - maintain 3% area of PwDom/ PrwMx forest units over 130 yrs Short Term: Maintain 3% of WG area in old growth where it exists at 2003	The Company had general success in meeting this objective, especially since, for all but one forest unit, the old growth targets were increased in the 2008 FMP above the uniform 3% target in the 2003 FMP (see section 4.3.6 of this report). The areas of old growth in 2008 exceeded the 3% level, when the ages of onset from the plan text (page 65) were used however the assessment of the objective in Table FMP12 uses older ages as the age of onset, thus it is not clear what the short-term 2003 FMP target was or whether it was met. The target was not met for old cedar (area > 140 years was 477 in 2008 vs 768 ha in 2003); old black ash and white spruce areas were not reported in the 2008 FMP. Regarding red and white pine, the forest units were changed in the 2008 FMP but it is possible to evaluate the target achievement – Table FMP4 shows that there are 119 ha of PR1 and PRW above 140 years of age in 2008, and 2009 ha that are between 120 and 140 years of age – thus the target has been met.

Maintain tree species diversity within the BNV in site region 4S as in natural benchmark scenario	- maintain each FU within eco-region BNV as measured by +/- 20% SFMM nat benchmark - maintain minimum Crown managed area by WG of rare tree communities (black ash, red maple, white spruce) specific targets in FMP pg 66	As described in section 4.3.6 with respect to wildlife habitat, the 2008 planning team tightened the range of area by forest unit vis-à-vis the nature run. Thus, the 2003 plan maintains forest unit area closer to the nature run value, and within a narrower BNV than the 2003 FMP did, thus meeting the first target. In 2008, the FMP reports that there is 408 ha of black ash and 795 ha of white spruce in the conifer upland forest type, compared with a reported area of 308 and 2048 ha, respectively in the 2003 FMP. The area of red maple was not reported in the 2008 FMP. The black ash target was met, the white spruce target not met and the red maple target was not reported. Overall, the objective was partially met, although the Company lost ground against the white spruce target.
Increase presence of Pr and Pw ecosystems	- increase managed, available area of PwDom by 5% (i.e. to 682 ha) by 2008 - increase managed, available area of PrwMx by 5% (i.e. to 1365 ha) by 2008	The Company eliminated the PwDom FU in the 2008 FMP and assigned the purer white pine areas into the mixed red and white pine (PWR) FU, while the pure red pine (PR1) was broken out separately. These changes complicate the assessment of this objective. The best assessment the audit team could develop was to compare the total PWR and PR1 area to the total target area of 2,074 ha in the 2003 FMP. Table FMP4 indicated that there was a total of 2646 ha in the PWR and PR1 FU's, indicating the intent of the objective was achieved.
Use silvicultural practices to emulate natural disturbance and landscape patterns characteristic of site region 4S	- move towards range of disturbance size and frequency as per site region 4S template - retain forest in patterns that emulate those created by fire Specific targets - FMP pg 68	As per AR-15 the frequency of forest disturbances that occurred in the 2003-2008 term were as follows: Size class<100 ha was greater than projected by 2 %; Size class 201-500 ha was the only class that was less by 1 %. Size classes 101-200 ha, 501-1000 ha, 1001- 5000 ha, 5001-10000 ha and >10 000 ha was same as projected.

		The majority of the size classes fell within or very close to the projected range. Over all the objective achievement has been met. The audit team's field inspections indicated that the retention of insular and peninsular residual patches, as required for NDPEG, was generally well done, however, the amount of residual individual trees was lower than the requirement. MNR compliance records indicated that there was an average of 17-18 total residual trees/ha, with 4-5 large wildlife trees on the inspected sites, compared with the NDPEG requirement of 25 total trees/ha and 6 large trees/ha respectively. Recommendation #10 has been offered to address this situation. Silvicultural practices were generally consistent with the emulation of natural disturbance patterns, i.e. retention of residual trees during site preparation operations.
To maintain the productivity of soil function on Forest	Protect all sensitive sites (including ES 11 and 12) through best mgmt practices	For the 2003-2008 FMP period, harvest and silvicultural operations on very shallow soils were appropriate for the site conditions and did not cause undue soil disturbance. However, the audit team did observe several instances of rutting due to harvesting on lowlands and on moist sites, as well as instances of gullying and soil erosion adjacent to access roads. The audit team believes this can be rectified by training, and Recommendation #11 has been offered to address this situation. Domtar has developed a standard operating procedure for soil conservation which can serve as the framework for training operators and other forest workers. In summary, the Company has room for improvement in

		meeting this objective.
Maintain forest function for wildlife habitat on Forest	Maintain preferred habitat area for Northwest Region selected wildlife species at or above 20% below minimum habitat in nat benchmark scenario during 100-year horizon. Specific targets for marten, moose, stick nests	Targets are identified for year 2063, so it is not possible to fully assess them at this time. However, during the plan period, the harvest amounts were less than planned for most forest units, suggesting most species would not be negatively affected. We note, however that harvesting of the pure jack pine forest unit exceeded the allowable harvest area. Further, we note that the amount of tending undertaken was significantly below planned amount; if regeneration is not as planned, then wildlife habitat targets may not be met. At this time we cannot confirm that targets have been met.
Maintain water quality and protect fisheries habitat within watersheds where forest mgmt activities occur	Maintain disturbed second-order watershed area <50% of total watershed area Protect all known fisheries values by maintaining AOC reserves	Secondary watershed disturbance was less than 50%. Fisheries AOCs were respected. Targets and the objective have been met.
Part B: Objectives regarding Social and Economic Matters		
Provide a predictable and continuous wood supply	Maintain available harvest volumes of: 787,000 m^3/yr SPF 254,000 m^3/yr Po 35,000 m^3/yr Bw	The targets were obtained by totaling the Wabigoon Forest's expected contribution to the regional wood supply, as developed in a matrix form by the regional MNR. The projected SPF harvest in the 2003 plan period was 725,000 m^3/yr, while the poplar and birch harvests were 290,000 and 27,400 m^3/yr, respectively. The projected failed to meet two of the three targets in the short-term, and by 2023 none of the targets were being met. If the targets can be considered as the indicators of the achievement of the objective, then the "continuous" aspect of the objective is not being met. (The plan does predict future wood supply hence the "predictable" part of the objective is met.) We note

		further that the target did not specify a timeframe within which the targets were applicable, further supporting our conclusion that the objective has not been met. The actual average annual harvest during the plan period was roughly 608,000 m^3 of SPF, 166,000 m^3 of Poplar and 12,000 m^3 of white birch.
Make available incidental volumes for local personal or small scale commercial use	Where possible accommodate requests for commercial timber, or commercially harvest tree parts or residue Attempt to make available historic personal use volumes and products	The Company provided volumes for personal commercial timber use and for personal fuel use. The auditors' are not aware of reasonable requests being refused and consider this objective to have been met.
Work with local Aboriginal peoples whose communities are in or adjacent to the Wabigoon Forest to identify and implement ways to enhance social and economic benefits	Develop and maintain open communications between Weyerhaeuser, MNR, Migisisahgaighan, Wabigoon Lake, Lac Seul, Wabauskang, and Naotkamegwannig First Nations. Also Aboriginal peoples of Wabigoon. Facilitate opportunities for economic development	Ongoing efforts with mixed results and progress towards meeting the objective, with further work to do. It seems MNR does not have the resources/capacity to engage with First Nations. First Nations deal directly with the company.
Recognize and respect the legitimacy and presence of other commercial businesses, and contribute to the economic vitality of resource based businesses in or adjacent to Wabigoon Forest through protection of associated values.	Meet all terms of negotiated resource management agreements (RSAs) Minimize conflicts between forest industry and other users and attempt to resolve all conflicts during the planning process	Two remote tourism operators entered into RSAs with the Company during development of the 2008 FMP; there were none dating from the 2003 FMP. While there is some public dissatisfaction with the harvest level on the forest (see section 3.4 of the IFA), there were no significant disputes. Recommendation #13 was issued with respect to a complaint received by the audit team from one outfitter. The issue raised by the tourism operator violated the spirit of the objective, although in other respects the objective was achieved.
Provide road-based access, land use and recreational opportunities through	Maintain 1947 km of primary and secondary access during plan term.	Maintenance targets exceeded (according to Summary of Maintenance under the MNR Roads Program). In general, the audit team found the roads in reasonable

maintenance and development of access to areas planned for harvest within plan period		states of repair. Most roads are left open to for public use. Target and objective were met.
Conduct forest mgmt activities in a manner that protects private lands, parks, and other land ownership or values.	No encroachment onto private or park lands Protect known values through implementation of AOC prescriptions	No instances of encroachment onto private lands or parks were identified by the audit team and the objective was met.
Protect identified /registered archeological and cultural heritage sites from conditions that will increase deterioration while minimizing fibre loss and archeological mitigation costs	No negative impact on identified or high potential archeological or cultural heritage values from forest mgmt activities.	The audit team found no instances where archeological and cultural heritage values were damaged by forest operations or road-building. The objective is considered by the Audit Team to have been met.
Part C: Provision of Forest Cover Objectives		
the Planning Team for the 2003 FMP felt that forest cover objectives were fully covered under Part A. Forest Diversity Objectives and Part B. Objectives regarding Social and Economic Matters.		
Part D[20]: Silviculture Objectives		
Broad objective is to implement planned levels of harvest, renewal and maintenance to aid in the achievement of the 14 specific objectives stated under A. Forest Diversity Objectives, and B. Social and Economic Matters.	Targets are contained in the targets for the previously specified objectives.	For the 2003-2008 FMP, the levels of renewal that were achieved approximately 81% of the forecast; 26,634 ha total regeneration compared with the planned level of 32,940 ha. When the planned area is pro-rated by the proportion of the planned harvest that was actually cut, the shortfall in regeneration becomes roughly 3,000 ha, due to a shortfall in artificial renewal levels. Recommendation #14 requires that all untreated areas arising from harvest operations during the 2003 FMP

[20] Note that the Silvicultural Objectives were labeled Part C in the 2003 FMP.

		are carried forward and receive appropriate silvicultural treatments. The levels of tending for conifer release were lower than forecast, but based on the audit team's evaluation of sites in the field, the levels of aerial and ground tending were appropriate to meet the silvicultural needs. The levels of pre-commercial thinning were also lower than planned (44%). This shortfall was due to the fact that less area with the appropriate stand characteristics was available than forecast (See Recommendation #15). Overall, the audit team concludes that the Company partially met its silvicultural targets during the 2005 FMP period, with the most notable shortfalls identified above

APPENDIX 3 – COMPLIANCE WITH CONTRACTUAL OBLIGATIONS

Licence Condition	Licence Holder Performance
Payment of Forestry Futures and Ontario Crown charges	As of March 31, 2010, the SFL holder, Domtar Inc., did not have any outstanding amounts owed to the Central Revenue Fund nor the Forestry Futures Trust. However, a number of overlapping licensees owed a total of approximately $211,000 in Forestry Futures Trust payments and $641,048 in Crown charges.
Wood supply commitments, MOAs, sharing arrangements, special conditions	The Company did not meet the wood supply commitments in paragraphs #2 and #3 of Appendix E of the Wabigoon SFL. This situation is discussed in detail in Recommendation #23. (The Company is also out of compliance with the same commitments that are also part of Appendix E of the Trout Lake SFL.)
Preparation of FMP, AWS and reports; abiding by the FMP, and all other requirements of the FMPM and CFSA	The 2008 FMP was approved by MNR when it was incomplete, which is a breach of MNR's fiduciary duty to uphold its forest management responsibilities (See Recommendation #7.). The District MNR and Company had reached an agreement whereby the Company would provide the required corrections by April 1, 2008, but this did not happen. An amendment addressing a large number, but not by any means all, of the errors and deficiencies was approved in January 2010 and the remaining problems have not yet been addressed. While the audit team primarily faults the MNR for agreeing to approve a deficient plan, the Company is also culpable in this outcome. The Company has prepared AWS' as required but only one of five AR's for the audit period have been approved – the other four have been submitted but the Company has failed to satisfactorily address all of MNR's concerns (See Recommendation #22)).
Conduct inventories, surveys, tests and studies; provision and collection of information in accordance with FIM	Domtar has a good program of silvicultural effectiveness monitoring in place to support its field operations. During the 2003-2008 FMP term, Domtar completed the assessment of a total area of 6,642 ha for free-to-grow status, which represented 27% of the forecast area. To date in the 2008-2018 FMP period, Domtar has assessed 8,384 ha for free-to-grow status, which represents 82% of the two-year target. Given that the Wabigoon Forest has a good history of keeping up with FTG surveys prior to the 2003 FMP, there is not a large backlog of sites requiring assessment. However, Domtar should keep on top of meeting its survey objectives for the 2008 FMP to ensure that a backlog does not develop Table FMP-1 in the 2008 FMP reports that approximately 5.2% of the total production forest

	area (27,260 ha) is in the recent disturbance category. In addition there is 35,197 ha (6.7% of the production forest area) which has received silvicultural treatments but is not yet free-to-grow, for a total area of 62,457 ha. Note that the actual area in these categories will be less than this value, since some of the forecast harvest area was not actually depleted in the 2003-2008 FMP term (the actual harvest levels were 90% of planned). Given that free-to-grow assessments are conducted 10 to 14 years after treatment, the Wabigoon Forest should have approximately 10-12 years of harvested area requiring survey at any point in time. Since the 10-year harvest area from 1998 to 2008 was 53,964 ha, this analysis indicates that there is little backlog of unsurveyed area on the Wabigoon Forest. In addition, there are no outstanding obligations for silvicultural treatments or surveys on Class X, Y or Z Lands. Domtar's methods for inventory update for FMP preparation were acceptable. All the silvicultural and inventory Information is collected and managed by Domtar according to the appropriate FIM standards.
Wasteful practices not to be committed	The Company fully utilized the wood that it harvested and did not leave unnecessary merchantable timber standing or felled on site.
Natural disturbance and salvage SFL conditions must be followed	The salvage harvesting undertaken during the term of the audit on the SFL area was organized expeditiously by MNR and the Company.
Protection of the licence area from pest damage, participation in pest control programs	In the year 2007, MNR conducted aerial spraying of Bacillus thuringiensis (Bt) on an area of 29,965 ha in the Wabigoon Forest to control an infestation of jack pine budworm. Assessment findings indicate that the control program appears to have been effective. Domtar participated in the planning and assessment of the pest control program as per their contractual obligations.
Withdrawals from licence area	There were no withdrawals of land from the licence area during the audit period
Audit action plan and status report	An action plan and status report were prepared. The Action plan was signed as prepared by the Company/MNR, reviewed by the Company, submitted by MNR on Feb 23, 2007, approximately 10 months after the IFA was submitted and significantly longer than the 2 month requirement. Status plan was signed as prepared by the Company and MNR between April 27 and May 19, 2009, reasonably close to the target of 2 years following completion of the Action Plan.
Payment of forest renewal charges to Forest Renewal Trust (FRT)	As of March 31, 2009, the SFL holder, Domtar Inc., did not have any outstanding amounts owed to the Forest Renewal Trust. At the same time, overlapping licensees owed approximately $172,568 in Renewal Trust payments.

Forest Renewal Trust eligible silviculture work	All Forest Renewal Trust (FRT) eligible work that we assessed in the field was of good quality. The Specified Procedures Assessment (SPA) conducted by KPMG, which was completed for the 2008/2009 fiscal year, identified a number of errors in the company records for that year. Most notable were a number of expenses related to the Trout Forest (which is also managed by Domtar) which were charged to the FRT account for the Wabigoon Forest. The approximate total was $99,549. Recommendation #12 requires Domtar to review the FRT accounts for both the Trout Lake and Wabigoon Forests, and reconcile any incorrect cost allocations. We assessed approximately17% of the total area of the Specified Procedures sites in the field, sampling from all the activities conducted (site preparation, renewal, tending, and FTG surveys) and found that all the treatments were in place, were properly identified and mapped, and were of good quality. We also assessed in the field the data collected by Domtar for FTG surveys, and found the information to be accurate. We reviewed the silvicultural records for the remaining four years of the audit period, and found that all expenses were eligible and appropriate. Domtar maintains well-organized records of its FRT eligible activities, including the contractor invoices, records of eligible expenses, maps and project reports.
Forest Renewal Trust forest renewal charge analysis	Domtar conducted the renewal charge analysis on an annual basis throughout the audit period. The renewal charge analyses, and the rate changes that were made, were appropriate given the revenues generated and the expenditures required to implement the silviculture program for the Wabigoon Forest. Proposed renewal rate changes were reviewed and approved by MNR District staff. District staff indicated some concern that the renewal rate for conifer (i.e., spruce, jack pine, balsam fir and larch) should be increased to allow treating more area by PCT.
Forest Renewal Trust account minimum balance	The minimum balance was maintained as required throughout the audit period.
Silviculture standards and assessment program	SGRs were updated between the successive FMPs (from 2003 to 2008) to reflect local knowledge and scientific advances. The complete cycle of Domtar's silvicultural monitoring, information collection and processing, from SGRs, FOPs, field operations, and regeneration assessment surveys to FRI update is acceptable. There were no outstanding obligations on Class X, Y and Z lands on the Wabigoon Forest. For the 2003 FMP term, we estimate that there was a shortfall in the artificial regeneration of

	approximately 3,000 ha, based on the FMP forecast area, indexed to the actual area harvested during the 2003 FMP term. Thus, Domtar has not met its obligations regarding silvicultural standards for that time period.
Aboriginal opportunities	The Company has made some efforts to provide opportunities to Aboriginal people. Most successful has been provision of pre-commercial thinning and other silvicultural activities. There is little harvesting by First Nations companies on the Forest. The Eagle Lake Band harvested 23,600 m3 during the 2003 FMP period and KE-Nawind Housing Authority harvested some 1575 m3 during the same period.
Preparation of compliance plan	Compliance strategies and annual compliance plans have been submitted in a timely fashion and in accordance with regulatory requirements.
Internal compliance prevention/education program	The Company has a program for the on-going education of staff and contractors regarding compliance. The program works well in some areas but could be improved regarding the retention of live trees in harvest areas and the avoidance of site damage (see Recommendations #10, #11, and #18).
Compliance inspections and reporting; compliance with compliance plan	The Company undertakes compliance inspections and the reported trend in non-compliances improved during the audit period to a low level of non-compliance. However, the audit team observed that occurrences of site damage and inadequate retention of residuals were not being reported and some blocks did not receive any compliance assessment, hence the reported rates of non-compliances are not entirely reliable. Recommendations #18 and #19 were issued regarding these issues. Recommendation #20 is intended to ensure that the Company submits its inspection reports in a timely manner.
SFL forestry operations on mining claims	This licence requirement was not evaluated since it was associated with a medium-risk procedure that was excluded as part of the risk-based selection of procedures to evaluate.

Review of Previous Audits' Recommendations

The audit team reviewed the performance of the Company and MNR in addressing recommendations from the 2005 IFA. Where the recommendation has been partially addressed, or not addressed, we provide below an assessment of the situation. All other recommendations were considered to have been addressed and closed.

Of the 22 recommendations in the 2005 IFA, this audit team found that 14 were satisfactorily addressed and the majority of the remainder were either partially addressed or work was on-going to implement them. One recommendation was acted on but the result perpetuated the issue giving rise to the recommendation.

There were several areas where the previous IFA recommendations were not fully addressed. One area is residual retention, which attracted three recommendations in 2005. There appears to have been little improvement in the retention of snags and the compliance reporting of the issue until 2009. The Company still gets variable results and while MNR's level of compliance inspection of this aspect has improved, the lack of sufficient residuals was very noticeable during the present audit. Recommendation #12 required the Company report in FOIP reports and in the ARs on snag retention plot data obtained during compliance inspections, and again this only started in earnest in 2009 in the FOIP reports, and was not reviewed in the ARs. The audit team has issued Recommendation #10 in an effort to get a better result. The auditors note that this problem also cropped up in the 2000 IFA, as well as in the 2005 and 2010 audits, leading them to question whether this is a very high priority for the Company.

In a similar vein, Recommendation #9 was intended to have the Company and MNR agree on site disturbance guidelines, and then enforce them. The audit team observed some instances of rutting and erosion that would have violated the Company's site disturbance SOP but which were not reported – in some cases by either the Company or MNR. Recommendations #11 and #18 are concerned with this issue.

The recommendation to have the Company and MNR review the regional wood supply targets for the Wabigoon Forest was not addressed, however it was somewhat flawed in that it should have been addressed to Corporate MNR to ensure that appropriate targets were provided to the 2008 planning team. In any event, the same targets were used in the 2008 FMP as were used in the 2003 FMP and they were not even achievable in the short term in the 2008 FMP.

Recommendation #13 required the Company to review its planned spacing program, which it did and concluded that it was adequate to provide the anticipated future stands. This recommendation also required the company to assess the adequacy of the level of implementation. However, this audit team observed that the Company's level of PCT was less than half of the planned level, leading to a concern that the level of implementation (the area actually treated) may not be adequate to meet FMP objectives. Recommendation #15 in this audit attempts to address the same issue.

APPENDIX 4 – AUDIT PROCESS

Overview

The Crown Forest Sustainability Act (CFSA) directs the Minister of Natural Resources to conduct a review of each tenure-holder every five years to ensure that the licensee has complied with the terms and conditions of its licence. The Independent Forest Audit (IFA) contributes to this mandate, as well as complying with the direction to the Ministry laid out in the 1994 Class EA decision, subsequently confirmed in the 2003 Declaration Order[21]. Regulation 160/04 under the CFSA prescribes the minimum qualifications required by the audit team and sets out direction related to the timing and conduct of IFA's, the audit process and reporting.

The Independent Forest Audit Process and Protocol (IFAPP) sets out in detail the scope and process requirements of an IFA, and contains approximately 150 individual audit procedures. The IFAPP, reviewed and updated annually by the MNR, states that the purpose of the audits is to:

- "assess to what extent forest management planning activities comply with the Forest Management Planning Manual and the [Crown Forest Sustainability] Act;
- assess to what extent forest management planning activities comply with the Act and with the forest management plans, the manuals approved under the Act, and the applicable guides;
- assess the effectiveness of forest management activities in meeting the forest management objectives set out in the forest management plan, as measured in relation to the criteria established for the audit;
- compare the forest management activities carried out with those that were planned;
- assess the effectiveness of any action plans implemented to remedy shortcomings revealed by a previous audit; and
- review and assess a licensee's compliance with the terms and conditions of the forest resources licence."

In 2009, MNR introduced a streamlined reporting procedure, which has been followed for this report. The body of the audit report provides a succinct discussion of the audit process and results, with more detail on key aspects contained in the appendices. There are two key types of audit findings – recommendations and best practices. A recommendation is explicitly defined in the IFAPP as follows:

Recommendation - sets out "a high level directional approach to addressing [a] non-conformance. In most cases, recommendations follow from the observation of material non-conformances. In some instances, however, auditors may develop recommendations to address situations where they perceive a critical lack of

[21] Declaration Order regarding MNR's Class Environmental Assessment Approval for Forest Management on Crown Lands in Ontario, approved by Order in Council 1389/03 on June 25, 2003.

effectiveness in forest management activities, even though no non-conformance with law or policy has been observed."

Recommendations can be directed towards the Company and/or at the appropriate administrative level of the Ministry of Natural Resources (District, Region or Corporate). Auditees must address all recommendations in follow-up actions.

If the Audit Team finds that an aspect of forest management is exceptional it may be identified as a best practice. The IFAPP states that "Highly effective novel approaches to various aspects of forest management may represent best practices. Similarly, applications of established management approaches which achieve remarkable success may represent best practices." In contrast, "situations in which forest management is simply meeting a good forest management standard" do not qualify.

Audit Procedures and Sampling

The IFAPP describes each of the components of the audit process and contains the audit protocol, which constitutes the main framework for the audit. The procedures, which are the basis for assessing the auditees' compliance and effectiveness, are organized according to eight principles. A positive assessment of the procedures under each principle results in the principle being achieved. A negative assessment of a procedure typically leads to a recommendation.

IFAPP segregates the procedures into three classes based on the risk to forest sustainability should the management aspect covered by the procedure not be achieved:

- "low risk" - strictly administrative in nature;
- "moderate risk" - have an administrative component but also a bearing on sustainability; and
- "high risk" – related to sustainable forest management.

For each principle, the audit team is required to sample 20 – 30% of the procedures identified as low risk and between 50 – 75% of the procedures considered to be moderate risk and all the procedures identified as high risk. This risk-based approach is intended to reduce the auditor and auditee workload and focus the audit on more significant issues. The table below identifies, for each principle, the number of procedures in each risk class, the number audited, and the proportion that are audited. Because the Wabigoon Forest has been certified to a third-party certification standard, the IFAPP does not require the IFA to assess compliance with Principle #1 (commitment) and the Human Resources part of Principle 5 (System Support).

Procedures Audited, by Risk Category								
Principle	Low Risk			Medium Risk			High Risk	Comments
	Applicable (#)	Selected (#)	% Audited	Applicable (#)	Selected (#)	% Audited	Audited (#) (100% Audited)	
1. Commitment	0	N/A	0	2	N/A	0	0	This principle was not audited because the Forest has been certified to a third-party standard.
2. Public Consultation and Aboriginal Involvement	0	N/A	N/A	6	5	83	2	We opted to audit a higher percentage of medium procedures than required since we think these are important aspects. We opted not to assess whether public notices of AWS inspections were issued, since MNR usually ensures that this is done properly.
3. Forest Management Planning	6	2	33	12	10	83	38	Low risk procedures regarding the content of the plan introduction, SEV briefing note, index to EA components of the FMP, and the plan's contributor page were not assessed since these are examined during plan review. Medium risk procedures related to documentation of the certification and approval of the FMP, and the plan description of the unit's physical features were also omitted for the same reason. We ended up auditing the certifications on the FMP due to the issues encountered regarding plan approval
4. Plan Assessment & Implementation	1	1	100	1	1	100	9	All procedures under this principle were audited.
5. System Support	0	N/A	N/A	1	1	100	0	The Human Resources criterion was not audited because the Forest has been certified to a third-party standard, however the audit team felt that the Company staff levels were insufficient to provide for adequate performance and made a recommendation.
6. Monitoring	0	N/A	N/A	7	7	100	11	All procedures under this principle were audited.
7. Achievement of Objectives and Forest Sustainability	0	N/A	N/A	2	0	0	15	Two medium risk procedures that only applied to the RPFO were not audited, since the Year Ten AR is available.
8. Contractual Obligations	0	N/A	N/A	4	4	100	8	All procedures in this Principle were audited

Totals	7	3	42	35	31	89	84	

The audit commenced with the preparation of a detailed audit plan[22], which described the procedures to be used during the audit and assigned responsibilities to members of the Audit Team. A pre-audit meeting was held between the lead auditor, Domtar, MNR, and the chair of the Local Citizens' Committee (LCC). The primary purposes of the meeting were to familiarize the auditees with the audit process, review the Audit Plan, and make a preliminary selection of sites to inspect in the field during the audit. Subsequently, some minor adjustments were made due to access issues, to improve the balance of operations and sites, and to reflect comments from the public and the LCC.

The focus of the audit was an intensive six-day site visit, which included document review, interviews and inspections of a variety of sites throughout the Forest where activities had been undertaken during the audit period. There was considerable follow up afterwards during the preparation of the draft audit report.

Sampling and Sample Intensity

The IFAPP required the Audit Team to sample at least 10% of the area treated during the audit period for each major activity, such as harvesting, site preparation, and regeneration. Activities that carried higher risk or that were only undertaken on relatively small areas were to be sampled more intensively. The audit met or exceeded the minimum sample size specified in the IFAPP for all activities, with the overall level of sampling ranging from 10 to 19% for key activities, and reaching 32% in the case of primary and branch road construction.

Examples of operations were examined in each major forest unit present on the Forest, representing a range of harvesting systems, year of harvest, season of operation, and silvicultural treatment packages. A number of sites where renewal activities had been conducted during the audit period were visited to evaluate the appropriateness and quality of these treatments and to perform an initial evaluation of their effectiveness. These included sites that were site prepared, seeded, planted, and tended, and those for which natural regeneration treatments were prescribed.

The IFAPP directs the auditors to verify in the field at least 10% of the areas reviewed in specified procedures undertaken by KPMG. This review was undertaken for the 2008-09 fiscal year. The audit team assessed 17% of the area treated by activities funded from the Forest Renewal Trust during the target year.

The table below shows the total amount of each key activity that took place during the audit period, and the sample size and sampling intensity in the IFA. In the table, the total in the audit period refers to the areas that were harvested, site prepared, and renewed during the audit period. The next column to the right shows the total area of the treatments viewed during this audit. The sampling intensity is calculated by dividing the area of treatments viewed by the total area (or other relevant measurement statistic) during the five-year period.

Table 2. Sampling intensity of the field operations, by key feature investigated.

Feature	Total in Audit Period	Total Sampled	Sample Intensity %

[22] ArborVitae Environmental Services Ltd. Wabigoon Forest Independent Forest Audit Plan, Aug. 12, 2010.

Harvest (ha)	26,488	4292	16
Site Preparation (ha)	12,909	2,317	18
Planting (ha)	10,155	1,662	16
Seeding	7,532	1376	19
Tending (ha)	4,433	822	19
Free-to-Grow Assess (ha)	18,275	2,618	14
2008 FRT Areas (ha)	9.077	1,575	17
Primary and Branch Road (Re-) Construction (km)*	77.3	25	32

* Funded at least in part through the Road Construction and Maintenance Agreement with the MNR.

The table is intended to portray an approximate level of effort only. There are several factors which preclude too-precise an interpretation of the figures presented in the table. Although we viewed many individual harvest and/or treatment blocks during the field inspection portion of the audit, more than one aspect of forest management was inspected at some sites. For example, at sites where harvesting had taken place, harvest practices, compliance issues, road construction, Area of Concern (AOC) protection, site preparation, and regeneration activities may all have been inspected. Finally, of the area figures shown above, it should be noted that we did not inspect every hectare of the blocks we visited – such a level of effort would be infeasible.

Summary of Consultation and Input to Audit

The audit team solicited comments and opinions from the public, stakeholders, and Aboriginal communities using a combination of mail outs to individuals and organizations on the Dryden MNR District mailing list, and newspaper notices. A sample of roughly 325 individuals and groups, taken from the Ministry's district mailing list, was invited by mail (sent late August, 2010) to provide input into the audit. Requests for input were published in three local newspapers – the Dryden Observer, the Ignace Driftwood and Sioux Lookout Bulletin - as well as in the Wawatay News – a publication with an Aboriginal focus. Local Citizens Committee (LCC) members were also asked to solicit comments from the constituencies that they represented.

In response, we received nine sets of comments. One commenter expressed displeasure with road decommissioning, and a second felt that road maintenance was lacking. A third commenter felt that the Forest was well-managed and the remaining six expressed varying levels of unhappiness with forest management. Issues cited ranged from harvesting on a trapline, "almost no original timber left", concern about large clearcuts and cutting around lakes, and reduced levels of wildlife.

During the audit, the consultation auditor and other audit team members spoke with roughly half of the people who were members of the LCC during the audit period (some are no longer LCC members). Various members also expressed concern over issues ranging from wood utilization to tenure, forest contractors, MNR capacity and resources to monitor and enforce. Some felt that keeping the mill running was the main priority; the LCAC statement in Supplementary Document 15 of the FMP included the following point: "[LCAC] Members felt that the licence holder pushed and lobbied the planning team and steering team very hard to maximize the short-term harvest".

The audit team contacted the five Aboriginal communities that have expressed an interest in the Forest – Wabigoon Lake Ojibway Nation, Eagle Lake First Nation, Lac Seul First Nation, Wabauskang First Nation, and Naotkamegwanning First Nations – by June 8 letter to inform them that the audit was taking place and to invite them to participate. The consultation auditor met with representatives from Lac Seul First Nation and Wabigoon Lake First Nation. Both representatives felt that communication with the Company is good. They also noted that their rapport with the MNR DM is good, although their relationship with MNR is otherwise limited.

APPENDIX 5 – LIST OF ACRONYMS

AOC	Area of Concern
AHA	Available Harvest Area
AR	Annual Report
AS	(MNR) Area Supervisor
AWS	Annual Work Schedule
BMP	Best Management Practice
BNV	Bounds of Natural Variation
B.Sc.F	Bachelor of Science in Forestry
Bt	Bacillus thuringiensis
CFSA	Crown Forest Sustainability Act
Class EA	Class Environmental Assessment for Timber Management on Crown Lands in Ontario
CSA	Canadian Standards Association
DM	(MNR) District Manager
FIM	Forest Information Manual
FLORA	Final List of Required Alterations
FMP	Forest Management Plan
FMPM	Forest Management Planning Manual
FMU	Forest Management Unit
FOP	Forest Operations Prescription
FOR	Forest Operations Report
FRI	Forest Resource Inventory
FRT	Forest Renewal Trust
FTG	Free-to-Grow
FU	Forest Unit
GIS	Geographic Information System
ha	hectares
km	kilometres
IFA	Independent Forest Audit
IFAPP	Independent Forest Audit Process and Protocol
IRM	Integrated Resource Management
LCAC	Local Citizens Advisory Committee
LCC	Local Citizens Committee
LTMD	Long Term Management Direction
m3	cubic meters
MNR	Ontario Ministry of Natural Resources
MOA	Memorandum of Agreement
NDPEG	Natural Disturbance Pattern Emulation Guide
NRVIS	Natural Resource Values Information System
NSR	Not Satisfactorily Regenerated
OLL	Ontario's Living Legacy
PCT	Pre-commercial Thinning
PLORA	Preliminary List of Required Alterations
PT	Planning Team
R.P.F.	Registered Professional Forester
RPFO	Report of Past Forest Operations
RSA	Resource Stewardship Agreement

SEM	Silvicultural Effectiveness Monitoring
SFL	Sustainable Forest Licence
SFMM	Strategic Forest Management Model
SGR	Silvicultural Ground Rules
SPA	Specified Procedures Assessment
ToR	Terms of Reference

APPENDIX 6 – AUDIT TEAM MEMBERS AND QUALIFICATIONS

Auditor	Role	Responsibilities	Credentials
Dr. Jeremy Williams, RPF ArborVitae Environmental Services Ltd.	Lead Auditor, Harvest and Wood Supply Auditor	• overall audit coordination; • oversee activities of other team members; • liaise with Company & MNR; • review and inspect harvesting records and practices; • review aspects of forest management related to forest economics and social impacts; • reviews FMP modeling inputs	B.Sc.F., Ph.D. (Forest Economics); more than 20 years consulting experience in Ontario related to forest management, planning, wood supply modeling, and forest economics; participated in 21 previous IFA assignments; certified as an auditor by the Quality Management Institute.
Mr. Chris Wedeles ArborVitae Environ. Services Ltd.	Wildlife and Roads Auditor	• review and inspect Areas of Concern Documentation and Practices; • review and inspect aspects of forest management related to environmental practices and wildlife management integration; • review and inspect access and water crossings	B.Sc., M.Sc. (Wildlife Biology); 21 years wildlife and forest ecology and experience in Ontario; completed almost 31 previous independent forest audits; certified as an auditor by the Quality Management Institute.
Mr. Rob Arnup. R.P.F.	Silvicultural Auditor	Review and inspect silvicultural practices and related documentation; review and inspects selected environmental aspects of forest management	B.Sc. Senior forest ecologist with 32 years' experience in silviculture, ecosystem-based forest management applications and environmental consulting in boreal Canada and elsewhere. Completed 24 IFAs and 9 FSC assessments in Ontario.
Mr. Mark Leschishin, RPF Borealis Forestry Consulting	Planning Auditor	Review FMP and related documents to ensure compliance with FMPM and other regulations; review plan development process for conformity with FMPM.	Forest Technician Diploma & B.Sc.F. Over 30 years of experience, with specific expertise in the areas of management planning, silviculture, forest operations, GIS, and auditing. Mark is an approved Lead Forest Assessor for Smartwood Certification and has participated in sixteen IFA and other forest management audits in Ontario
Mr. Marcelo Levy, Responsible Forestry Solutions	Consultation Auditor	Review documentation related to forest management consultation Interview stakeholders, LCC, and First Nations regarding forest management issues	B.Sc. (forest engineer) and M.Sc. in Environmental Studies. Directed the FSC Canada Standards Program until 2005, when he formed the current Company.

APPENDIX 7 - TREND ANALYSIS

The Comparison and Trend Analysis Report contained in this Appendix was produced by Domtar. Although the Report was reviewed by the Audit Team, the Audit Team had no role in writing it.

Trend Analysis – **Title and Certification Page**

TREND ANALYSIS REPORT

For the

WABIGOON FOREST
Audit Period 2005 to 2010
Dryden District, Northwest Region

Domtar Inc.

I hereby certify that this Trend Analysis Report is complete and accurate, and has been prepared to the best of my professional skill and judgment, in accordance with the requirement for the Forest Management Planning Manual and the Forest Information Manual.

[R.P.F. Seal]

RPF

July 11/11
[date]

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RPFO-13 Comparison of Projected, Actual and Desired Future Forest Condition For the Managed Crown Forest Area Available For Timber Production

RPFO-14 Summary Report of Managed Forest Area Available For Timber Production

RPFO-15 Summary Report of (Landscape Pattern or) Forest Diversity Indices

RPFO-16 Summary Report of Habitat For Selected Wildlife Species

RPFO –17 Summary Report of Landscape Processes

RPFO- 18 Summary Report of Selected Measurable Indicators of Forest Sustainability Criteria

Appendix 1
RPFO Tables (2007/08 AR RPFO-13 to 18)

4.0 INTRODUCTION

The Wabigoon Forest is managed by Domtar Pulp and Paper Products Inc.(Domtar) under Sustainable Forest Licence (SFL) #541953. Wabigoon Forest is located in the Dryden District, in the Northwest Region. This Trend Analysis covers activities that Domtar undertook during the 2003-2008 years which is considered to be the current plan; and has been prepared using direction from the following:

> The Forest Management Planning Manual for Ontario's Crown Forests (2009) and (2004);

The text and tables included in this report suffice the requirements for the Year Ten Annual Report, and follow the correct format as outlined in the FMPM.

Background Information:
The tables prepared for this report have been taken from various FMP documents, primarily past RPFO, Past Trends Analysis, past and current FMP tables and past and current annual reports.

It is important to note that forest unit classifications have changed slightly over the past three planning terms.

4.1 Implementation of Forest Operations

4.1.1 Harvest Area

Table AR-7 shows the planned and actual harvest area levels. The table shows a progressive increase in harvest area off the Wabigoon Forest over the terms beginning in 1993 and ending in 2008. Actual harvest has never exceeded the planned harvest level in any throughout the 1993-1998, 1998-2003 and 2003-2008 FMP's. The actual harvest area has, over the past 3 plans, been 32%, 26% and 10% respectively lower than the planned harvest. Actual to planned levels were closest in the 2003-2008 almost achieving planned harvest.

During the current plan 2003-2008 the actual harvest was 90% of the planned harvest level. An overall improvement to utilizing available area on the Wabigoon Forest compared to past plans was achieved. This increase is primarily due to three reasons during the term (2003-2008) of this plan. The first is the completion of the Ear Falls sawmill and its ability to run efficiently and utilize its planned volume. The second reason is the continued reduction in reliance of external wood sources (purchase wood) by maximizing operational productivity on the SFL. The third reason several external mills activated their MOA's. There were challenges and difficulties

during the last part of the plan in terms of mill closers and halting wood deliveries instantly. Other challenges included operational difficulties due to newly emerging annual weather patterns such as heavy precipitation, late freeze up and early thaws that required operational flexibility and contingency planning.

Individually, On average, most forest units by area met between 70 % and 90 % of allowable harvest. The Pjmx and Pjprd forest units exceeded the allowable harvest by approximately 4 %. Further investigations as to why the increase is necessary for an explanation.

Approximately 1713 ha of blowdown wood was salvaged over the 5 year term or approximately 343 ha annualised. With this amount over the term, the original AHA is still not met fully but short approximately 300 ha/year. This area was found in the Manitoba point and Beak Lake and Anaway vicinity of the Wabigoon Forest. Industry and MNR (district and fire personel) has in the past worked promptly in amending the FMP and organizing operations to salvage blowdown areas. Salvaging wood from natural disturbance is a strategy to meet the wood supply objective in the FMP and this trend will continue in the future to eliminate further disturbances such as fire or insect infestation.

Trends in forest units include BwDom decreasing in area over the three plans to hardly no area available for harvest in the 2003 term. This trend continues into the 2008 plan. This can be attributed to change in forest unit definition over time. MxCon and MxHwd (another example of change in Forest unit) has increased over the terms but in the long term will reduce over time. Although there was virtually little market for hardwood species in the 93-98 plans other than chipping product, hardwood was fully utilized during the last term. Going forward the trend will look different as hardwood chips are no longer a product for the Dryden mill and hardwood products are and facilities are going through an economic adjustment where little hardwood product is needed. Sblow forest units are increasing over time and full AHA is being realized. This can be attributed to bigger size blocks of Sblow where other wood is among the stands and because of this it is much more feasible to extract rather a single small stand of Sblow where it was often by-passed. Spruce is reduced in area over the terms but still a larger component of the available area. PjPrd and PjMx reduce over time and will continue in the medium and long term before it starts to rise. The current forest units definitions are more purer than in the past and is a result of how it sorts through over time. No PwrMx was allocated or harvested which met the red and white pine forest ecosystem strategy. Prwmx exceeded the planned harvest and this was due to road right-of-way clearing in various areas on the forest that increased the actual harvest planned.

The planned annual harvest area has increased (875 ha) from the 5281 ha in the 1993 plan to 6406 hectares in the current 2003 FMP. The predicted AHA over the medium term will drop slightly to 5933 ha and then to 5522 for the long term with an average over time of 5300 ha.

All areas that were harvested were under the clearcut silvicultural system. There were only a few areas that were not cut from the 2003 but were bridged over into the 2008 plan. The bridging blocks that were harvested after the 2003-2008 plan included blocks: 158, 159, 190, 186, 951, 1281, 1292, and 1304.

Although the full available harvest was not achieved over the past three plans including what was salvaged in the 2003 term, the unharvested volume has been brought forward for the next FMP allocations helping with achieving a continuous wood supply. The 2023 and 2103 projections in AR 7 show that a predictable and continuous supply of wood is available in the future. This information helps support the objective to provide a predictable, continuous wood supply has been met.

4.1.2 Harvest Volume

AR-8 shows the summary of planned and actual harvest volumes over the past three terms. The species OC and OH are used vs. species because this is how the data has been prepared in the past and through MNR TREES, although they are mixed species. The harvest level of the 1993-1998 and 1998-2003 terms were very low and was consistent with the under harvest of the forest at 64% and 66% of actual versus planned harvest. The 2003-2008 term achieved 82 % of planned volume. This change in capturing volume on the license is the trend that has been achieved due operational changes within the company. The company has increased cutting capacity on the SFL to fulfil external commitments (MOA's) and which has reduce reliance on purchase wood for the company mill.

Compared to the area that was actually cut during those years, the actual volumes came very close to what was planned. Only 10% or less volume planned was not captured in these plans. The difference can be due to slightly conservative yield curves, more than required insulars left on site and slight discrepancies in FRI typing.

The planned harvest volumes increased 7% in1998-2003 from the 1993-1998 plan, then slightly decreased (4%) in 2003-2008 term. The projected medium and long term modelling indicates that the volumes will decrease considerably over time but on average levelling out at the 500 000 m3/year level with high and low terms based on the 2003-2008 runs. This trend was predicted throughout the previous plans and the projection is sustainable over time, just at a lower level.

Looking at the species being utilized Pj exceeded planned volume in the current term. Pj came closest to meeting plan volumes in the past two terms. The trend shows a dip in volume in the medium term as projected. Po has seen a rise in planned harvest yet the annual harvest for it has not achieved full utilization mainly due to market demand. The 2003-2008 plan did utilize the most of Po volume however this trend may not last due to reduced demand for hardwood in the area. Pr & Pw trend has been to harvest little to none and this trend is evident and contributes to the Pr & Pw objective. This trend will continue into the next plan as no harvest of these forest units are planned for allocation.

The full available volume was not achieved during this term for various reasons: due to the full AHA not capture; MOA's and external mill commitments halted due to market downturn; possible conservative yield curves; additional area left on site for insular requirement over and above required and slight discrepancies in FRI typing. Available harvest volumes were met where demand was exercised (MOA's). This information indicates that the objective to provide a predictable, continuous wood supply has been met although lower volume than the past three terms is projected in the future.

4.1.3 Renewal and Maintenance

AR-9 shows the summary of planned and actual renewal, tending and protection operations for he 1993-1998, 1998-2003 and 2003-2008 planning term.

During the 1993-1998 term, 3589 ha (annualised) of area was harvested, and 2827 ha (79 %) was regenerated. The figure seems low, but it is a reflection of the average yearly harvest levels, which increased over the years 1-5 given the delay for implementation of silviculture. Of the area harvested, approximately 89 % was regenerated artificially via aerial seeding (51 %), planting (46 %), scarification (1%), and shelter cones. Natural regeneration by clear cut and seed tree accounted for 11 % of the total renewal program. Approximately 73 % of planned mechanical site preparation was achieved. There was no aerial tending or ground tending program recorded in this term.

During the 1998-2003 term 5028 (annualised) was harvested, and 4495 ha was regenerated approximated 89 %. Of this area aerial seeding made up 26 % of renewal; planting 73 % and scarification 1 %. Natural regeneration made up 11 % of the renewal program by clearcut and seed tree for this term. Approximately 83 % of site preparation was conducted annually during the term. Tending including cleaning and spacing achieved 65 %.

During the 2003-2008 planning term (five year term), 5757 (annualized) was harvested and 5327 ha was regenerated approximately 83 %. Of this, the natural regeneration has surpassed the amount of natural regeneration planned in the 2003-2008 term by approximately 31%. This figure can be attributed to leaving some area for 1-2 years to determine what natural ingress occurs before a treatment applied and to take advantage of well established hardwood and conifer regeneration at time of SIP. The Wabigoon Forest is a very fertile forest and natural ingress is abundant in which no treatment was required. From the amount of LFN area, this trend has led to an action plan in 2010 to revisit these leave for natural (LFN) areas to confirm the treatment or if follow-up treatment such as fill-in plant or chemical tending is required. In 2010 there were follow-up treatment such as fill-in plants in some of these areas and monitoring will continue in the summer/fall of 2010. Scheduled treatments will occur in 2011 if applicable.

Table 1: The following tables summarizes the treatments for the 2003-2008 reporting term:

Activity	Actual (hectares) To Date	% FMP Achieved
Natural Regeneration	9575	131%
Artificial Regeneration	17060	72 %
Artificial Re treatment	47	None forecasted
Artificial – Supplemental	353	None forecasted
Site Preparation	15173	90%
Tending	5915	49%

A total of 37, 390 hectares were treated via aerial application of BT for infestation of jack pine budworm in the southern parts of the Wabigoon Forest that aided in maintaining a continuous and predictable wood supply working with forest protection branch of MNR.

In consequence to the not fully captured planned harvest levels, and the additional LFN areas, artificial regeneration has not fully achieved planned targets for the planning term. Planting and seeding is below planned artificial renewal by 30% and 22% respectively. The previous two plans prior indicate a trend to exceed target for planting but lower than plan for seeding for all three terms. Area that was conducive to seeding was identified and prescribed by Domtar forester. The trend over the past three years has been lower than the amount of area seeded than what was predicted.

The objective to increase the presence of Pw and Pr on the forest approximately 124,842 Pw seedlings were planted and 254,832 Pr seedlings were planted over the term. This totals a pure stand of over 250 ha and 380 ha of predicted forest units which is well over the target of the term to increase managed available area in the PwDom and PrwMx forest units.

The amount left for natural regeneration is much more than predicted. Reasons for this in many cases as mentioned above was to monitor areas for natural ingress before treating area, taking advantage of the well established hardwood components during SIP, and planting around these conditions. In addition, several blocks had seasonal or markets restraints, meaning that operations had to move out of block due to site conditions or markets. This cause for the block to be unfinished for more than 1-3 years and because of this, treatment was not conducted in the 2003 term. It is recognized that this is not an ideal situation, but it is a reality operationally especially during tight or non existing demands on fibre markets. Areas are being revisited in 2010 and an action plan is being created for treating or not treating these blocks.

In addition to the natural regeneration that occurs on the Wabigoon Forest, in the 2008 Foresters report of the 2008 FMP analysis package, 4-yr surveys conducted on the forest found that there is abundant ingress of natural hardwood and softwood throughout the forest.

Site preparation involves mechanical, chemical and prescribed burns (slash pile burning). Mechanical site preparation achieved just over 100% of planned. There was no chemical site preparation conducted in the 2003-2008 term. Prescribe burn achieved 55 % of planned target. The reason for this downfall is due to reduced conifer slash piles present. Roundwood operations reduced considerably and where markets were available, larger than minimal diameter as per the scaling manual was required for the external mills, therefore Domtar chipped conifer tops at an increased cost. Hardwood piles exist today however, due to the high moisture content, heavy branching and minimal fines, these piles do not burn successfully after first year. In 2008 plan, there are plans to prepare a fire plan for debris piles and remove this slash.

The actual maintenance of stands in past plans has fallen short of the planned amount throughout the three terms. The current plan actual thinning program achieved 43 % of planned. There is a

trend of seeding less area and therefore, that would correspond to the amount of thinning required. All sites are viewed and measured for need of thinning and it has been found that a reduction in the amount of thinning is required. This can be attributed to the application rate of seeding (once 50,000 vs. 35,000 seeds per hectare). In addition, this program has been awarded to First Nations contractors, and unfortunately has not been a program with high area thinned due poor productivity, and/or to the time needed to train new thinners, thinners starting but leaving the contract due to dislike of the job or to EFF employment and late starts in the season only giving 2-3 months work before snow falls. Currently, there has been and increased interest from two local Reserves for thinning employment and Domtar is taking advantage of this interest starting a crew up in early June 2010.

The trend for vegetation control program has fallen short and all three plans. The factors for this trend currently can be attributed to being more selective before applying herbicide, and being more selective on species site compatibility. The last two years of surveys indicate to review the following year for many sites that was lower on the priority list for spray. It is hopeful an early 2010 fall inspection will verify need for areas that were renewed during the reporting term.

It is recognized that the renewal numbers show lower than what was planned in the current plan. Target numbers would not be achieved as the target harvest was not achieved. All areas have been reviewed or are being re reviewed where updated prescriptions have been proposed. For the new 2008 plan, planning inventory was updated based on the treatments and their projected forest units. Given the efforts during the term in the actual renewal, re-reviewing areas that may require follow-up treatment and updating the following plan inventory, achievement of providing a predictable and continuous supply of wood products to the forest industry will continue.

4.1.4 Harvest and Regeneration

AR-10 shows the Summary of Harvest and Regeneration Trends. The 2003 forest units were populated in the 98-2003 inventory to help show a trend. The information indicates that more area was harvested than surveyed for regeneration over the planning term. Approximately 35 % of harvest/salvage area was reported successfully regenerated of this term in the 1998-2003 and 22 % in the 2003-2008 term. PjPrd shows was the largest forest unit that moved toward FTG status. MxHwd dropped significantly from 98 term to 2003, but that could be based on what available areas were required for survey based on what was harvested. It is very likely more area was surveyed during the term, however it did not meet FTG standards at time of survey. FTG surveys were conducted on stands of ten years old. This age was new to the 2003-2008 term as it was found that stands were not reaching FTG at earlier ages therefore the switch was made. Although the regeneration looks low, not all area would require FTG surveys in the planning term. FTG was conducted in two consecutive years in the following 2008-2013 FMP to capture those areas ready for surveying.

4.1.5 Forest Condition

The forest unit definitions have changed between plans and this makes the forest unit to forest unit changes difficult to compare in AR-11. The wide difference in area by forest unit is a direct result and changes in the forest unit definitions. FMP – 4 in the 2008 FMP included 12,558 hectares of unavailable areas. However, this aside the target for all forest units / age class in the 2003 FMP were exceeded except for the SHA forest unit when compared to the 2008 FMP table FMP-7.

The first three tables in AR-14 illustrates that the forest diversity and structure has not substantially changed from the 2003 Plan to the 2008 Plan. The 2008 age class structure by FU falls within the BNV in all Forest units except for the MxCon (107,994 ha) forest unit. This forest unit is higher than the BNV set in 2003.

The available timber production by forest unit when compared to the 2008 plan, all forest units except MxCon and HxHwd fall within the BNV. These two forest units are higher than the top end of the BNV. This is likely due to the changes in forest unit definitions.
The comparison of Old Forest Structure was difficult to compare due to the different onset of Old Growth. In the 2008 FMP, all forest units project old growth area that is moving towards, or are at or above the desired target levels. These levels are sustained throughout the planning horizon. BWD old growth dips for one term in term 9 then increases and this is was considered acceptable by the 2008 planning team members. It is important to note that targets for old growth are different for each forest unit compared to the blanketed approach.

4.1.6 Habitat for Species at Risk and Selected Wildlife Species

AR-12 summarizes the species at risk and selected wildlife species habitat abundance at the plan start of the 1998-2003 FMP and the 2003-2008 FMP as well as the projections in the current plan and the actual at plan end for the species that were modelled for the 2008 FMP.

For the Wabigoon Forest, there has been no species at risk modelled and assessed over time. Although caribou is modelled, the caribou is not managed on the Wabigoon Forest.

Only Great grey owl, Pileated woodpecker, marten and moose habitat can be tracked through the 1998 FMP, 2003 FMP and 2008 FMP starting points. Moose abundance of winter habitat was significantly different from the 1998 FMP to the start of the 2003 FMP increasing over 240 000 ha. The moose habitat for foraging was not available in the 1998 FMP, but appears constant over the short, medium and long term and the start of the 2008 FMP. Great grey owl habitat stay constant during the 1998 and 2003 FMP but the start of the 2008 FMP almost doubled the projected area. The Great grey owl was a species of special concern during the preparation of the 2003-2008 FMP, and the desired/target level (minimum 97 668 ha) was achieved. The Pileated woodpecker has been reduced from plan to plan and falls below benchmark starting 2008 (plan start). This could be a factor of different modelling inputs and habitat requirements compared to the 2003-2008 FMP as

the benchmark. Marten habitat drastically reduced from 1998 FMP to the start of the 2003 but increased more than anticipated during the 2003 FMP term.

The objective in the 2003 FMP was to maintain the habitat with in 20% of the natural benchmark scenario. This was achieved for all species except the Pileated woodpecker.
Table 2.

Species	Natural Benchmark	2003 Plan Start	2008 Plan End (2008-2013 plan start)
Great Grey Owl	55,022 ha	82,500 ha	152,100 ha
Pileated woodpecker	13,924 ha	20,700 ha	9,400 ha
Marten	110,036 ha	184,100 ha	159,600 ha
Moose winter	198,529 ha	271,000 ha	280,900 ha

As indicated in a section of AR-14, no habitat falls below the benchmark. The habitat matrix of preferred habitat changed dramatically between 2003 and 2008 habitat modelling. Different habitats were modelled in the 2008 FMP and cannot be compared at this date.

AR-13 is a summary of Regeneration and Silvicultural Success. Total assessed area during the term is 6667 ha including some natural disturbance area (25 ha). PjPrd lead the top forest unit with over 3000 ha successfully regenerated followed by SbPrd (1099 ha) and Pjmix (740 ha). The areas assessed year of origin ranged from 1986 to 1998. Under 'Silvicultural Ground Rule' a (*) is found. This indicates that at the time (1988-1993 FMP and 1993-1998 FMP) there was not a silvicultural ground rule that was in place from one forest unit to another as indicated. No issues arose from silvicultural ground rules (SGR's), however they were re evaluated and adjusted in the 2008 FMP. Over time improvement and adjustments have been made with silvicultural ground rules and FTG surveys will continue in the future years to update inventory for future.

4.1.7 Monitoring and Assessment

Monitoring of silviculture success such as FTG surveys and exceptions monitoring for the current plan took place during the current term and in 2008. An assessment of the monitoring results has been completed in the annual reports. The following surveys were conducted throughout the term:

- FTG Surveys – Aerial – conducted jointly with MNR
- Exceptions monitoring for bird nests
- ES 11 & 12 Level 1 and Level 2 monitoring
- 4rth year regeneration surveys
- permanent sample plot surveys

forest inspections – operations and AOC monitoring through compliance plan
As mentioned above, FTG surveys were conducted in the planning term. The current FMP extends the assessment target to ten years for highland sites and fourteen years for lowland sites after the year of depletion versus the previous 1998-2003 FMP. The Company was assessing regenerating stands in advance of these targets and difficulty arose when compiling the AR

Silvicultural Success table 14. Aligning the survey year with the FMP target years will produce a more valid reporting assessment.

All stands classified as Free-To-Grow were healthy and growing well. To the knowledge of the Company no significant NSR (Not Sufficiently Regenerated) areas exist. Although, a good renewal program continues to exist on the Wabigoon Forest FTG surveys were conducted during the planning term. FTG surveys will continue in the future years and inventory will be updated.

The Wabigoon FMP does have prescriptions for areas of concerns that are exceptions to the recommendations in the implementation manuals. Since 1998, Domtar has been conducting a monitoring program in relation to the exceptions to the respective stick nest guidelines. Monitoring consists of flight surveys to assess nest productivity and site occupancy. The monitoring program indicates if a nest is occupied and has average productivity, then monitoring can cease. Based on this, monitoring has ceased for a number of nests. The remainder of the nests requires monitoring for up to 5 years based on results founds. During the preparation of the 2003 FMP, monitoring results collected during the 1998 FMP were used to remove inactive nests from the values maps. Updates in bird guidelines and new direction in protection of nest will not require nest monitoring.

In addition to exceptions monitoring, the company participated the below programs as part of the monitor programs.

Level I Monitoring

The Project Manager is responsible for maintaining all files pertaining to the Level I permanent sample plots and developing the format for data management. All data and files will be kept at the Center for Northern Forest Research (CNFER) within the Stand Ecology Program. Establishment reports will be prepared for each of the Level I plots following the pre-harvest assessments and nutrient analyses. The report will include the following information:

- *Locator maps and maps of plot layout*
- *The results of the physical, chemical and biological assessments, as outlined in section 2.2 of this document*
- *Site photographs*

At each of the follow-up assessments periods (i.e. immediately post-harvest, and 5 and 10 years post harvest), progress reports will be prepared which will include:

- *Updated Site Photographs*
- *A summary of results of the current physical, chemical and biological assessments*
- *An assessment of the "Six Key Indicators" (refer to document)*

The stand Ecology Program Leader at CNFER will complete the assessment of change in the six key indicators: Soil compaction, Soil Rutting and Puddling, Soil Displacement, Soil Erosion, Soil Organic Matter Retention, and Soil Nutrient Reserves.

In addition, at the year 5 and 10 assessments, the results of the Level II assessments will be compared to the Level I results, particularly with respect to the range of : post-harvest site disturbance, amount of wood material on site post-harvest and soil textures and fertility.

Level I plots were re measured in 2008 by CNFER.

Level II Monitoring

SFL holders are responsible for the establishment and field assessment of Level II plots (see document). Level II plots are key components of the Region wide monitoring proposal and are required to assess the relevance of Level I results. Therefore it is critical that the results of the Level II assessments be available in the centralized CNFER database.
When the level II post-harvest assessment is complete, SFL holders will complete a computerized report in a standardized format to be developed by Project Manager and a copy will be sent to the Project Manager. The Project Manager will confirm the assignment of each plot to the allocation matrix and will be responsible for coordinating the analysis of nutrient samples.

Level II monitoring plots have not been established on the Wabigoon Forest as suitable sites had not been found. Domtar is contributing funding for the re measurement in 2008 of all Level 1 across the province.

Level III Monitoring

As part of the monitoring program, the shallow sites were identified in the Annual Work Schedule under Appendix K. Although, the company is required to only identify those areas 8 hectares or greater, the company has listed in their AWS all potential Eco-sites 11 & 12 (including those less than 8 hectares). The blocks identified as potential ecosites 11 & 12 include all stands in the current inventory (1998) that are identified as PFR (Protection Forest Reserve) and PF (Protection Forest Site Class 4).

The Best Management Practices selected for these sites include practices that minimize the amount of site damage (i.e. ground disturbance and nutrient loss) that occurs throughout the stand as a result of harvest and site preparation treatments. Operations Foresters have identified areas for field operators to avoid on pre works using aerial photography and ground truthing where sensitive sites are noted. Site preparations operations are also made aware of these sensitive sites and are instructed to alter normal operations.

Through Domtar's Environmental Management Systems, staff and harvesting/silviculture supervisors/operators are required to attend mandatory start-up and annual training that reviews the best management practices for sensitive sites including ecosites 11 & 12.

Practices that we are doing to help minimize ground disturbance on shallow sites during harvest and renewal activities are as follows:

- *Minimizing skid trails, landings and roads on shallow soil sites*
- *Avoid harvesting and skidding on steep slopes with shallow soils susceptible to erosion*
- *Identifying areas to avoid where rutting is susceptible in pockets of the ecosites*

- *Silvicultural treatments that minimize ground disturbance such as aerial seeding or planting that do not require SIP. Boot screefing where SIP did not occur is practiced. Using mini-plugs and seeding is a common practice throughout the Wabigoon Forest*

Best management practices were conducted to help minimize disturbance during harvest and renewal practices.

Ground surveys were conducted where these exceptions occurred and will continue in the 2008 FMP for those areas harvested and treated in the 2003 FMP.

Forest operations inspections were conducted and submitted by the company contractors, company foresters and MNR staff throughout the 2003-2008 planning term. During the term there were 1090 inspections "in compliance" and 19 inspection "not in compliance" conducted by the company during the term. The MNR conducted spot checks and found 54 "in compliance" and 6 "not in compliance". The MNR also conducted 6 formal audits and found six "in compliance" and two "not in compliance". Details of these outages were described in the annual reports for the term.

Roads and water crossing were monitored annually and where required maintenance has occurred. An issue with high beaver activity blocking culverts and flooding areas including roads is a continuous issue on the forest.

4.2 Analysis of Forest Disturbances

The size and frequency of forest disturbances created by harvest and natural disturbances are reported in AR-15.

Table 3 SUMMARY OF FREQUENCY DISTRIBUTION OF FOREST DISTURBANCES BY SIZE CLASS

Size Class (ha)	Frequency of Forest Disturbances						
	Number			Percent			
	Plan Start	Projected Plan End	Actual To Date	Plan Start	Projected Plan End	Actual To Date	Template
< 100	n/a	780	829	n/a	81%	83%	17%
101 - 200	n/a	71	69	n/a	7%	7%	3%
201 - 500	n/a	64	59	n/a	7%	6%	14%
501 - 1000	n/a	29	26	n/a	3%	3%	19%
1001 - 5000	n/a	23	20	n/a	2%	2%	40%
5001 - 10000	n/a	0	1	n/a	0%	0%	6%
> 10000	n/a	0	0	n/a	0%	0%	8%
Total		967	1004				

The actual disturbance regime differs slightly from the forecast of the harvest targets over the five-year period. There are more smaller disturbances (<100, 101-200 ha size class) created resulting in only 2% for the <100 size class and no change in percent in the 101-1000 ha size class. There are less disturbances created than planned (201-500 ha, 501-1000, 1001-5000 ha size class) with only a difference in 1 % for the 201-500 ha size class and no change in percent for the remainder size classes. The actual disturbance shows no disturbance >10000 ha as what was forecasted. Little movement toward the template occurred in this term with five disturbance classes remaining the same and two classes moving away slightly from template. The forest has a large amount of fragmentation of smaller cuts and it was a decision (recommendation) to work toward defragmenting areas over the next few terms where economically feasible to help work toward the natural template. The 2008 FMP disturbance by size class template showed a positive movement toward natural template in six of the seven size classes (2008 FMP12).

4.3 Analysis of Review of Renewal and Tending Activities

A summary of the harvest and regeneration trends are reported in AR-7 and AR-9. AR-7 reports on harvest area by forest units for both the 1998-2003- and 2003-2008 FMP's. AR-9 reports the summary of the actual renewal, tending and protection operations.

As seen in Table four, renewal and tending programs for the Wabigoon Forest has exceeded in the terms 1009-1998 and 1998-2003 compared to harvest level.

Table 4:

Term of FMP	Percent Actual Harvest	Percent Actual Renewal
1993-1998	68 %	73 %
1998-2003	74 %	86 %
2003-208	90 %	72 %

Within the 2003-2008 planning period no different silviculture treatment packages that are exceptions to the recommendations in the silvicultural guides were used on the Wabigoon Forest.

AR-7 indicates that 90 % of the planned harvest actually occurred in 2003-2008. The amount reduces the opportunity to renew the planned level. This was true for the previous two terms as well.

AR-9 indicates the trends for renewal has followed the harvest trends although more planting was done in 1993-1998 than planned. In the 2003-2008 term, a five-year total of 17060 hectares have been artificially regenerated. The area artificially regenerated by planting was 11933 hectares and by aerial seeding was 5019 hectares. Scarification occurred on approximately 109 hectares to help establish natural seeding to occur. Both planting and seeding numbers regenerated areas of natural disturbance (salvaged) and normal harvest areas. The percent of area treated by planting, seeding and scarification combined achieves a total of 72 % of FMP forecast for the 2003-2008 FMP. As mentioned not all area targeted for harvest occurred within the term and this would have reduced the amount of renewal. In addition, several blocks still had wood (bundle form) in the cut-over and the area could not be regenerated until felled timber was processed. These treatments will resume in the 2008 FMP term. It is not uncommon to always have a lag in renewal treatments from one plan to the next. In addition, some areas are being revisited to verify if follow up treatment is required.

A total of 9573 hectares was actually left for natural regeneration through the 2003-2008 term. Natural regeneration achieves 103 % of FMP forecast. This over achievement could include

natural disturbances and specific sites on the forest that was more favourable for natural regeneration than artificial regeneration.

Approximately 14630 hectares have been site prepared over the 2003-2008 FMP, which achieves 100 % of FMP forecast. Two hectares were chemically site prepared where tree improvement areas are used. . Approximately 541 hectares were treated through slash pile burning.

The total amount of pre commercial thinned areas in the 2003-2008 FMP was 1177 hectares. This number achieved 44% of FMP forecast. Contracts were given primarily to First Nations business groups. Areas not needing tending and late starts for contractor in the season are a factor for not achieving FMP forecast. The amount of future pre commercial thinning will depend on the availability of candidate stands within the next 10-years.

Chemical tending less than planned but is reflective to the amount of harvest conducted. Other factors that would bring this number not to planned is better site selection where tending is not necessary. This program continues to look for areas for tending and based on harvest locations and time of harvest, this number may be higher in the future.

AR-10 shows the summary of harvest and regeneration trends from plan 1998-2003 and plan 2003-2008. Overall, more area was harvest/salvaged in 2003 term compared to the 1998 term. As mentioned earlier, surveys were conducted at age ten to ensure height requirements were met as previously trees were growing well, but to meet FTG status the heights were found to be too low.

AR-13 shows the assessment of regeneration and silvicultural success during the 2003-2008 FMP. A total of 6667 hectares have been assessed. There was very little surveying done during the plan because the survey time frame changed from seven year post harvest to 10 years. Stands were left for 10 years before surveying for free to grow to ensure the height requirements were being met. In 2007 the surveys resumed.

Overall, the historical silvicultural activities have been very successful and results show both on paper and on the ground. In 2005, the Independent Forest Audit (IFA) examined the success of the regeneration on the Wabigoon Forest against the 1998-2003 and 2003-2008 FMP's. The opening and summarizing statement on page 29 of the IFA Report for the Wabigoon Forest 2000-2005 stated:

"*Operations were implement according to plan requirements. Prescriptions were suited to site conditions. The skill and experience level of Domtar staff and contractors meet a very high standard. The results on the ground are exemplary and represent some of the best operations seen by member of the audit team.*"

Suggestions for improvements that are being addressed in the 2008-2018 FMP silviculture strategy are as follows:

- Increase the density of spruce planted on clay and silt soils where competing vegetation problems are anticipated. This high density plant is anticipated on 5 % of the SBP forest unit.
- Review seeded jack pine stands for tending. The amount of pre commercial thinning will depend on the availability of candidate stands within the next 10-year period. Surveys are conducted in the fall on areas that are potential required pre commercial thinning

The effectiveness of silvicultural treatment packages that are exceptions to the recommendations in the silvicultural guides were adequate and resulted in both regeneration and silviculture success. Although it was found that the 2003 silviculture ground rules were adequate, slight improvements and format adjustments were made to silvicultural ground rules for the 2008 FMP.

The 2003-2008 term is slightly behind when compared to harvest level. Rationale for this can contribute to some harvest blocks not fully completed due to market or season changes (wood still in cut-over) and renewal activities could not go in until bundles were processed or the company took advantage of natural hardwood and conifer regeneration that occurs on the Wabigoon Forest. A plan to review many of these areas is in place to review the sites and if required prescribe further treatment.

4.4 Review of Assumptions in Modelling

No issues regarding the modeling assumptions arose from the 2003 plan and therefore no changes or refinements were necessary during the term. All modeling inputs were reviewed during the 2003 plan and all inputs were re reviewed for the 2008 plan. Joint MNR and Company participation during modeling was done for the 2008 FMP. It is important to note that lengthy discussion among planning team and LCC and SFMM runs were created and reviewed before a final run was selected.

Forest units were slightly modified from the 1998 plan to the 2003 plan and further again in the 2008 plan. Further refinement to the 2008 forest units was necessary to be consistent with regional standard forest units. Specifically, minor adjustments through changes to forest unit definitions were made to Po & Bw. This will allow future comparison and analysis with consistent forest unit definitions.

For the 2008 plan, yield curves were reviewed and changed using local growth measurements from the Wabigoon Forest. The method of devising the new growth and yield curves was conducted with the same method the MNR NW Ontario will use in the future.

Overall, all assumptions were reviewed and decided upon with the planning team during the 2003 FMP and was re reviewed or changed for the 2008 FMP.

4.5 Assessment in Objective and Achievement

The 2003 FMP Objectives and Targets are as follows:

Objectives & Targets

The Crown Forest Sustainability Act provides direction on management objectives that must be addressed in every forest management plan. In general, these objectives must relate to (a) forest diversity, (b) social and economic matters, (c) the provision of forest cover for those values which are dependent on forest cover, and (d) silviculture objectives for the harvest, renewal and tending of the Crown forest.

The following objectives and targets have been extracted from the 2003 FMP:

A. FOREST DIVERSITY OBJECTIVES

1. Age Class Structure

Objective:
To maintain or move towards a natural range of forest age classes which includes mature/overmature age classes while staying within a socially acceptable range.

Targets:

- *Long-term (100 years)- Maintain age class distribution area within each development stage within bounds of natural variation for site region 4S (SFMM).*

Achievement Discussion:

RPFO-13 age class distribution by area within each development stage is achieved over all comparing start of term 2003 to end of term 2008.

AR-14 looks at the Forest Diversity – Age Class Structure and Forest Composition. The long term target is to maintain age class distribution area within each development stage within bounds of natural variation for site region. AR-14 shows that the ha of managed crown forest by forest unit has not changed significantly from the beginning of the 2003 plan to the end of the plan term. There is an increase in the younger age groups for Mxcon, MxHwd, and SbPrd forest units. PjMix and SbMix older age class does not fall within the BNV, short by 700 ha and 3000 ha respectively. However given the change in age class groupings this maybe insignificant.

Looking ahead using the 2008-2018 FMP, FMP-13a all but one forest unit increased in short-term, medium-term and long-term except one forest unit. The forest unit that did not maintain age class distribution area within each development stage is SBL age-class 121+ years. Old SBL decreases in short-term (10-years), but increases to within desired levels there after. Plan start level (ha) at 2008 (end of 2003 plan) is 6,696 ha. The short term projected achievement is less than plan start level at a level of 5,065 ha. This can be attributed to new inventory from 2003 to 2008 planning periods. Some discussions have occurred that in the NW region older stands may have been mistyped through interpretation with younger age classes for such forest unit.

- *Maintain 3% of forest in PwDom/PrwMx forest units over 130 years of age*

Achievement Discussion:

AR-14 shows an increase in the PrwMx by almost 5 times and PwDom shows a decrease by almost 4 times however the age class comparisons are different and forest units are slightly different from 2003 FMP to the 2008 FMP. However, it is safe to say that 3 % of the forest unit has been achieved from plan start to plan end.

RPFO-13 shows an increase in area in projected term 2108 (Desired Forest Conditions) for PRW (PwDOM) of almost five times the area. Area increases from 650 ha in 2003 to 1416 ha in 2008 to 3147 ha's in 2108. In FMP-13 of the 2008 FMP, the amount and distribution (%) of old growth forest at plan start for the 2008 FMP is 21 % for PRW>140 years. The projected percent long term (100 years) is 31%. This number is likely higher for PRW age class of 130 years since the model uses age of 140 years.

RPFO-13 shows an increase in area in projected term 2108 (Desired Forest Conditions) for PR1 (PrwMx) of almost three times the area. Area increases from 1300 ha in 2003 to 1281 ha in 2008 to 3772 ha's in 2108. In FMP-13 of the 2008 FMP, the amount and distribution (%) of old growth forest at plan start for the 2008 FMP is 6 % for PR1>130 years. The projected percent long term (100 years) is 9%.

In addition, no area has been allocated for PRW and PR1 in the 2008-2018 and this will further help meet the target for both the 2003 and 2008 targets.

This target has been achieved for both forest units.

- *Long-term - Maintain 3% of all forest unit areas in old growth conditions*

Achievement Discussion:
During the 2008 Forest Management Planning preparation of strategic planning, all old growth targets are greater than was retained in the 2003-2008 FMP as outlined in FMP13, page 2. All forest units projected old growth area that is moving towards or at or above the desired/target

levels (for 2008 plan), which are sustained through, to the end of the planning horizon (desired levels achieved and maintained from 2048 onwards as some stands grow older). BWD old growth area dips for one term in Term 9 to 5 % then increases thereafter. This was considered acceptable by the planning team members involved since it short term only for the management strategy.

This target has been met

- *Short-term – Maintain 3% of forest unit areas in old growth conditions where old growth conditions exist at Year 2003 (old growth by forest unit targets included in SFMM)*

Achievement Discussion:
AR-14 shows all forest units achieved at least 3 % old growth from 2003 FMP to plan start of 2008 FMP except one forest unit. PJP old growth at 2003 was 2% (FMP-12 Plan Start 2003 FMP) and target was 3% for all forest units. During development of 2008 FMP, the planning team decided that a desired level of 1% PJ old growth was more reasonable for the forest. The Plan Start 2008 FMP PJ old growth was 2% (2008 FMP FMP-13). The change in old growth age from one plan to the next may vary cause a slight variation but PjPrd is not found with high concentrations on the Wabigoon Forest and this is reflective of it. So while the 2003 FMP target of 3% was not achieved by the end of the term, it still remained at the same level as Plan Start for the 2003 FMP (no improvement but no harm either).

This target has been achieved.

2. Forest Composition

Objective:
To maintain forest tree species diversity within the bounds of natural variation for site region 4S over time as reflected in the natural benchmark scenario.

Targets:

- *Maintain each forest unit within defined eco-regional bounds of natural variation as measured by plus or minus 20% of the natural benchmark SFMM scenario.*

Achievement Discussion:

All but one forest unit has fallen between the bounds of natural variation from the 2003 FMP to the 2008 plan start level. CMX is higher than the 20 % over but poses no threat to this forest unit being on the upper end of the scale. It is important to note again that there have been slight differences in forest unit definitions from 2003-2008 FMP to 2008-2018 FMP. The 2008 forest units are used to enable future units to be compared with most updated definitions.

- *Maintain minimum Crown, Managed area by working group of rare tree communities (black ash 308 ha, red maple 1401 ha, white spruce 2,048 ha)*

Achievement Discussion: As per the 2008 FMP, FMP-13 the plan start level are compared to the 2003 target. The following table shows 2003 and 2008 FMP targets for rare tree communities:

Table 5: Rare Tree Communities and area of each for the 2003 and 2008 FMP

Rare Tree	2003 FMP target	2008 FMP Plan Start
Black Ash	308 ha	404 ha
Red Maple	1401 ha	112 ha
White Spruce	2048 ha	838 ha
Larch		589 ha

There is a reason that the rare tree community species show a decline in 2008 FMP plan compared to the 2003 FMP start. The reason is that there has been a revised inventory and therefore changes are inevitable from one plan to the next. These numbers also reflect working groups vs. forest units. These species are found within forest units and can be harvested however Black ash and Red maple are not a desired species overall and are usually left in form of insular patch or residual snag trees. Larch has been added to the 2008 FMP list as a species of rare forest types.

No yellow birch or elm was encountered during harvest operations. Approximately 19665 cedar seedlings were planting during the term.

3. Red Pine and White Pine Forest Ecosystems

Objective:
To increase the presence of red pine and white pine forest ecosystems. Current locations of stands containing red and white pine forest units are highlighted on 1:15,840 scale maps in supplementary documentation section L. Also included in this section is a key map showing the location of all old growth stands containing 10% or more red or white pine.
Targets:

- *Increase managed, available area in the white pine dominated forest unit (PwDom) 5% higher than Year 2003 level during this term (Year 2003 650 ha increased to at least 682 ha in Year 2008). This will approach the 18% required in the 0-20 year age group by 2023.*

- *Increase managed, available area in the red pine/white pine mix forest unit (PrwMx) 5% higher than Year 2003 level during this term (Year 2003 1,300 ha increased to at least 1,365 ha in Year 2008)*

Achievement Discussion:

As per the 2008 FMP-4 Summary of Managed Crown Productive Forest By Forest Unit, the PwDOm – now the PRW has approximately 1,364 hectares available. The PrwMx - now the PR1 forest unit shows approximately 1282 hectares available. The target is met with the PRW forest unit, but falls slightly short the target number by 83 hectares. It is important to note that the forest unit definitions have slightly changed from the 2003 to 2008 FMP and all the Pw has been applied to the PRW forest units. If you roll both numbers (683+1365=2048), 2048 hectares are required for target achievement and actual 2008 numbers are comparable to (1364+1282=2646), 2646 hectares are available in the PRW and PR1 forest units.

In addition, the objective to increase the presence of Pw and Pr on the forest approximately 124,842 Pw seedlings were planted and 254,832 Pr seedlings were planted over the term. This totals a pure stand of over 250 ha and 380 ha of predicted forest units which is well over the target of the term to increase managed available area in the PwDom and PrwMx forest units

No allocation of red and white pine has occurred in the 2008 FMP as decided by the planning team to maintain these species on the forest. Although there is no allocation, right-of-way red and white pine trees maybe cut. If there is a significant amount, the MNR will be notified.

This target has been met.

4. **Landscape Pattern**

Objective:
To use silviculturally sound forest practices to emulate natural disturbance and landscape patterns characteristic of Site Region 4S as described in the Forest Management Guidelines for the Emulation of Fire Disturbance Patterns - Analysis Results, April 4, 1997.

Targets:
At a landscape level, move towards a range of disturbances size and frequency as per the template for Eco Region 4S.
At a forest level, retain residual forest in patterns that emulate those created by fire (i.e. 8-27% peninsular, 2-7% insular residual; amount varies by forest type).

Achievement Discussion:
As per AR-15 (of the 2007-2008 AR) the frequency of forest disturbances that occurred in the 2003-2008 term were as follows: Size class<100 ha was greater than projected by 2 %; Size class 201-500 ha was the only class that was less by 1 %. Size classes 101-200 ha, 501-1000 ha, 1001-5000 ha, 5001-10000 ha and >10 000 ha was same as projected.

Due the first time applying landscape level disturbance the majority of the size classes fell within or very close to the projected. Further FMP's will continue to monitor this objective.

Insulars were applied by block-by-block basis where there was deficient insular area left. It was found that at times more area was left as where areas were ribboned to leave as an insular and additional areas elsewhere in the block, that were not operable were also left.

Over all the objective achievement has been met.

5. Soil Function

Objective:
To maintain the productivity of soil function in the Wabigoon Forest
Target:

- *Protect all sensitive sites, including shallow soil (ecosites 11 and 12) areas, identified for operations through best management practices*

Achievement Discussion:
To the extent possible harvesting operations were scheduled according to ground strength and season. Sensitive sites can be any of the following land forms according Domtar's EMS definitions:

- Riparian areas around lakes, rivers, streams, creeks, intermittent streams, alder swails, seasonal flows, grasslands, bogs and peat
- Spruce lowlands, treed muskegs, black poplar draws, tamarack sites
- Slopes that may be prone to slumping, rutting, erosion and severe soil disturbance
- Very shallow soils over bed rock (ES 11 & 12)

All sensitive sites were outlined on preworks given to both harvesting operator and site preparation operator. Operators were trained under the company's EMS system SOIL CONSERVATION PROCEDURES to eliminate destruction of sensitive sites. Compliance reporting from company reps, contractor reps and MNR reps have reported soil disturbance particularly in deep silty / clay soils during spring thaw or fall, where more moisture is present. All areas have been monitored in the summer during plant or site preparation operations. There have not been any sites identified where regeneration efforts failed due to soil disturbance. This target continues to be placed on the forefront of compliance inspections.

Shallow sites over bedrock are preferred to harvest in with conditions to reduce damage to soils. These sites are not normally site prepared, but hand scalped where possible further eliminating any damage to the areas.

Overall this target has been achieved but not without saying that ongoing monitoring and operating appropriately is necessary going forward.

6. Wildlife Habitat Function

Objective:
To maintain forest function for wildlife habitat in the Wabigoon Forest
Overall Target:
Maintain the amount of preferred habitat for NWR selected wildlife species at or above 20% below the minimum habitat projected by the natural benchmark scenario during the 100-year planning horizon (no Caribou targets since Wabigoon Forest entirely below the current range occupied by Caribou).

NW Region Selected Wildlife Species: (specific hectare targets added for selected species)

Achievement Discussion:
The selected wildlife species for which habitat is addressed includes provincially and locally featured species, species at risk and additional selected species. The MNR NW Region has identified nine (one that has no impact: caribou) selected wildlife species for the 2008 FMP whose habitat is to be modeled non-spatially and reported in the forest management plans.

The Great Gray Owl is one of the eight selected species for the Wabigoon Forest that was considered a species at risk with a provincial rank of Special Concern at time of plan preparation but has since been removed from this list.

Although there the 2003 FMP target to maintain the preferred habitat for NWR selected wildlife species at or above the projected benchmark, it is hard to compare the 2003 FMP targets to the 2008 FMP targets as the new species were added to or not included in the 2008 FMP. AR-14 shows that there is no direct comparison of selected wildlife species from the 2003 FMP to the 2008 FMP. Going forward a trend will be able to be made after 3-4 plans with same species to compare. At this time there is no information that can be compared.

Marten Target:
Long-term: Maintain 10-20% (Short-term 20 years: 8.7) of capable Marten habitat area in suitable conditions in core areas of 3,000 to 5,000 hectares each in size, well distributed across the forest. (Definitions of capable, suitable and cores areas contained in Marten habitat management strategy Section 2.3.3.2.11)

Achievement Discussion:
As per the 2003 FMP – Marten core area (short-term 20 years) 8.7 % of area was achieved. The 2008 FMP plan start level is 10.9 % of area. This level exceeded the 2003 plan level. The 2008 FMP marten core habitats slightly differ in core areas size in that smaller cores were created with higher quality habitat compared to the 2003 FMP where larger cores were created with poor quality. The 2008 core areas were re examined with the MNR Area Biologist and the company Planning forester during the 2008 planning preparations and agreed that quality vs. quantity was more important.

This target was achieved.

Moose Targets:

- *For Moose, ensure late winter habitat levels determined in SFMM, do not fall 20% lower than the lowest level within the natural benchmark scenario. (198,529 ha)*

Achievement Discussion:
As per FMP-13 of the 2008 FMP, Moose (winter) habitat level at plan start of the 2008 FMP is 280, 882 ha.

This target has been achieved.

Stick Nest Target:

- *Protect all known eagle, osprey and heron nesting sites by applying habitat guidelines when developing area of concern (AOC) prescriptions.*
- *Protect stick nests other than eagle, osprey, heron where possible and practical*

Achievement Discussion:
All known nests were protected throughout the 2003 FMP through AOC prescriptions. New nests that were found during operations were identified by MNR/Company and appropriate prescriptions were applied prior to further operations in nest zone. Some nests were removed from the values map due to joint (MNR/Company) evidence that the nest no longer existed or was being occupied by other than the intended species. i.e. raven.

Ongoing occupancy and productivity surveys were conducted jointly with MNR/Company as per the monitoring program through the 2003-2008 FMP.

A significant increase in nests were identified in the 2008 plan compared to the 2003 plan indicating the efforts done in working around nests have had no ill harm to breeding featured birds on the Wabigoon Forest. Heron rookeries were never found in high numbers and continue to be secluded and at times still hard to find. In 2007 the new Osprey Guideline came out reducing the original protection area and removing the timing restriction. New prescriptions for Eagle/Osprey/Heron and other stick nests have been developed for the 2008 FMP. Monitoring of the eagle nests did not take place in 208-2010 and an amendment will be conducted to remove this from the 2008 FMP due to new direction from the stand and site guide.

These targets have been achieved.

7. Fisheries and Water Quality Function

Objective:
To maintain water quality and protect fisheries habitat within watersheds where forest management activities occur
Target:

Maintain disturbed second-order watershed area at less than 50% of the total area of second-order watersheds during the term of this plan.

Achievement Discussion:
RPFO-17 summarizes the 1998-2003 and 2003-2008 of landscape processes. The Sub-Regional actual for 1998-2003 was 4,612 kgC/ha/year and the 2003-2008 Sub-Regional actual was 3,895 kgC/ha/year. In 1994 the value reported was 696.7 gC/m2/year but methodologies and precision of measured data changed going into the 1998 FMP. This was not a requirement for the 2008 plan and therefore is not reported on.

Water yield measured in second-order watershed area disturbed in the previous 10-years as a percentage of the total productive forest area. Area disturbed in second-order watersheds in the 1988-1998 period (start of the 1998 FMP) was 214.9 kms, or 6.4 % of the total productive area. Area disturbed in second-order watersheds in the 1993-2003 period (start of the 2003 FMP) was 309.6 km2, or 9.2 percent of the total productive area in second-order stream watersheds. This measure was not measured at the start of the 2008 FMP as it was not a requirement.

B. SOCIAL AND ECONOMIC MATTERS OBJECTIVES

8. Sustained Wood Supply
Current wood supply commitments for Weyerhaeuser include target volumes to Weyerhaeuser mill facilities in Dryden and Ear Falls, in addition to Memorandums of Agreement and business agreements. These commitments are met by maximizing the harvest off the Wabigoon and Trout Lake Forest SFLs where necessary, supplemented by wood purchases from other SFLs and private land.

If all of the wood supply commitments listed in Schedule E of the Wabigoon and Trout Lake Forest are acted on, Weyerhaeuser will have to increase the purchase program in order to provide wood to the Weyerhaeuser mill facilities.

Objective:
To provide a predictable and continuous supply of wood products to the forest products industry from the Wabigoon Forest
Targets:
The targets with this objective for the 2003-08 plan, as provided by the MNR Forest Industry Liaison represent the Wabigoon Forest contribution to the regional wood supply matrix:

- *Maintain available harvest volumes at 787,000 cubic metres spruce-pine-fir per year, and 254,000 cubic metres of poplar and 35,000 cubic metres of white birch per year in order to meet Weyerhaeuser wood supply commitments from the Wabigoon Forest. This includes:*
  - *Contribute approximately 615,000m3 of conifer and 125,000m3 of hardwood to the Weyerhaeuser Dryden mill complex (company estimate)*

* *As per MOA, provide up to 120,000 cubic metres of hardwood fibre per year from the Wabigoon and Trout Lake Forests to Trus Joist mill (Kenora) to supplement the supply commitments from the Kenora, Whiskey Jack and Red Lake Forests. It is projected that 80,000 cubic metres of this annual commitment will be supplied from the Wabigoon Forest.*
* *According to the SFL Schedule E wood supply commitments, make available through a long term MOA, up to 186,000m3 of conifer annually to Abitibi-Consolidated Inc. in Kenora and Fort Frances if required after their other sources of fibre are depleted (see SFL for specific wording). Preliminary estimates predict that this volume will be supplied from the Trout Lake Forest. This volume projection is subject to change.*
* *As per an MOA currently being approved, the Wabigoon Forest will provide a portion of up to 200,000 cubic metres of conifer annually to Bowater.*
* *If during the term of this plan, Columbia Forest Products/MNR announce a new mill will be built, a portion of the 175,000 cubic metres of hardwood MOU will be provided by the Wabigoon Forest.*

Achievement Discussion:

Trus Joist mill in Kenora received 12% of the MOA from the Wabigoon Forest during the 5-year term.

Abitibi Consolidated received 9 % of the Schedule E commitment from the Wabigoon Forest during the 5-year term.

Bowater received 75 % of the MOA from the Wabigoon Forest during the 5-year term.
No wood delivered to Columbia Forest Products was reported.

The reason the low delivery percentage of wood delivery to external mills is due to market demand and not an indication that the company could not fulfill its requirement. With the market changes, fibre demand changed too, and this brought many changes to the way fibre was processed and where it was needed.

Wood commitments were available in the term when external mills exercised them. Market down turn halted much of the external deliveries.

No modified AOC's were necessary to provide required mill demands through this term. There was enough wood allocated and actual harvest fell short of the allowable.

Salvage opportunities were exercised promptly with the MNR and company working together before insect or fire infestation took place for most known areas.

Slash piles were burned in the beginning of the plan when roundwood operations existed. Very few piles have not been burned from operations during the term.

The company participated and was very active in the Superior-Woods Tree Improvement Association and took a leading role with this group and their efforts. Renewal, tending and monitoring occurred on the forest however was under planned compared to harvest except for mechanical site preparation during the reporting term. Area not treated is being reviewed in the next term to ensure regeneration and/or following treatment is necessary. Also the full harvest area was not met and therefore forecasted renewal could not be met.

9. Personal and Commercial Use

Objective:
To make available to local users incidental volumes of timber for such uses as fuelwood, building logs, fence posts, furniture and other materials for personal or small-scale commercial use.
Targets:

- *Where possible accommodate requests for commercial timber or commercially harvest parts of or residue from a tree (for example: individual trees with burls or abnormal growth characteristics; cones for decorative or seed collection; balsam boughs; birch bark)*
- *Attempt to make available, at minimum, historic personal use wood volume and products based on levels provided during the previous five years.*

Achievement Discussion:
All requests for commercial timber or commercially harvest parts of or residue from a tree were welcomed over the 2003-2008 FMP. Personal use and commercial use overlapping agreements were issued for all requests. Over 5000m3 were utilized from such requests.

This target was achieved.

10. Working with Aboriginal Peoples

Objective:
To work with local Aboriginal peoples, whose communities are situated in or adjacent to the Wabigoon Forest, to identify and implement ways to enhance social and economic benefits to Aboriginal peoples who traditionally use the forest for subsistence and spiritual value.

Targets:

- *Develop and maintain open communications between Weyerhaeuser, MNR, Migis isahgaighan First Nation (Eagle Lake), Wabigoon Lake Ojibway Nation, Lac Seul First Nation, Wabauskang First Nation, Naotkamegwanning First Nations (Whitefish Bay). Also, maintain open communications with the Aboriginal Peoples of Wabigoon.*
- *Facilitate opportunities for economic development*

Achievement Discussion:

During the 2003-2008 period Domtar was active with building and maintaining relationships with First Nations groups within or adjacent to the Wabigoon Forest according to Weyerhaeuser's Policy and Framework for Building Relationships. This policy was continued with when Domtar took over in 2007. Primarily senior management was involved in working constructively with Aboriginal groups or businesses toward shared goals. Foresters were involved in day-to-day operational activities with both harvesting and silviculture operations.

Businesses that were or are involved on the Wabigoon Forest are as follows:
Noopimiing Anokewin from Wabigoon Lake Ojibway Nation is considered a primary harvest contractor for the Wabigoon Forest. This group is a full time harvesting contractors processing both round wood and chips from the Wabigoon Forest throughout the 2003-2008 FMP time frame and continues to in the 2008 FMP.
Wabigoon First Nation: Domtar purchased seedlings (approximately 12-15 million) over the 2003-2008 term from the Waabigoniiw Saaga'iganiiw Anishinaabeg Tree Nursery.
Wabigoon Lake First Nation: Domtar has purchased cleaning products processed through Wabigoon Lake Ojibway Nation's distributing company since 2005. Currently, Domtar has an arrangement to purchase the cleaning products directly through Acklands vs. the WLON center. Follow-up discussions to continue with this arrangement (via Acklands) or through the WLON center directly will occur.
Lac Seul has had pre commercially thinning contracts on the Wabigoon Forest during the 2003-2008 FMP and continues with this employment in the 2008 FMP.
Domtar, participates in partnership with Confederation College First Nation Youth Program. This program is provided for summer employment to students from various First Nations communities that include:
Eagle Lake
Wabigoon Lake Ojibway Nation
Lac Seul

During the preparation of the 2008-2018 Wabigoon Forest Management Plan, all five First Nations groups had representatives on the planning team. Some reps were more active than others but it was the first time that all groups participated.

Ongoing relationship building efforts are in place for 2008. These sessions are opportunities to maintain communication between the two businesses and to discuss future economic business opportunities in the future.

This target has been met and continues into the 2008-2018 FMP.

11. Tourism and Other Commercial Uses

Objective:

To recognize and respect the legitimacy and presence of other commercial businesses, and to contribute to the economic viability of resource based businesses in or adjacent to the Wabigoon Forest through the protection of associated values

Targets:

- *Meet all terms of negotiated resource management agreements where in accordance with MNR land use decisions. (The terms of any Resource Stewardship Agreements do not bind or limit the Minister's right to make land use decisions for Crown land in Ontario.)*

- *Minimize the conflicts between the forest industry and other forest users (i.e. prospectors, trappers, tourist operators, bait fishermen, bear hunt outfitters) and attempt to resolve all conflicts during the planning process (no conflicts escalated to issue resolution)*

Achievement Discussion:
There were no officially prepared or signed Resource Stewardship Agreements for the 2003-2008 FMP. A huge effort was put forth by the 2003 Plan Author and NOLTA representative during the preparation of the 2003 FMP, however no resource stewardships were prepared from the efforts. Several individual area of concern prescriptions were prepared that dealt with many recreational concerns and for those resource based businesses that felt no need for an agreement. These individual area of concern prescriptions worked well in the 1998-2003 and worked very over the 2003-2008 operating period as well.

Resource stewardship agreements were completed for the 2008 FMP – first ones that the Wabigoon Forest has ever entered. In addition, individual area of concern prescriptions were developed to meet the needs of stakeholders and resource businesses as they have in the past.

This target has been achieved.

12. Road Accessed (Usage) Recreation

Objective:
To provide road-based access, land use and recreational opportunities through road maintenance and development of access to areas planned for harvest within the plan period. (The degree to which individual roads contribute to this objective will be subject to MNR. District Land Use Guidelines and Fisheries Management Plan direction and the road abandonment strategy).

Targets:

- *Maintain 1,947 kilometres of primary and secondary forest access roads during the five-year term of the plan.*

Achievement Discussion:
In general, primary and secondary forest access roads are intended to facilitate the forest harvest activities and to meet long term silvicultural access needs for tending, thinning, surveys etc. In most cases, roads were left open to the public. Some roads had conditions applied at the FMP preparation and during the FMP implementation phase to them that eliminated access or reduced traffic in some areas. All primary and secondary roads where activities occurred received maintenance to roads on the Wabigoon Forest. No roads were closed to the public without the public being made aware of prior to decommissioning. There were several tertiary roads that fell within an area of concern prescription where road removal or deactivation was prescribed. Overall the roads that required maintenance for forest activities received maintenance however it is difficult to get a concrete number of kilometers since several areas received maintenance multiple times to ensure safety of forestry and public use.

This target was achieved and continues into the 2008 FMP.

13. Ownership and Other Land Use Values

Objective:
To conduct forest management activities in a manner that protects private land, parks and other land ownership or values.
Targets:

- *Have no encroachments onto private or park land during the term of this plan*
- *Protect known values through implementation of the area of concern prescriptions approved in the forest management plan*

Achievement Discussion:
During the 2003 FMP implementation, there were no impacts or encroachments onto private or parkland during forestry activities.

All known values were protected through area of concern planning prior to plan implementation or when a new value was discovered during forestry activities. No issues arose around private land or parkland through the implementation of the 2003-2008 FMP. The new 2008 FMP has timing and road decommissioning near the Turtle River Park for protection.

This target has been achieved.

14. Cultural Heritage Values

Objective:
To protect identified/registered archeological and cultural heritage sites from conditions that will increase rates of deterioration, while minimizing fibre loss and archeological mitigation costs.
Targets:

- *No negative impacts on identified archaeological or cultural heritage values resulting from forest management activities*

Achievement Discussion:
Over the 2003-2008 FMP there were no compliance issues that revealed any negative impacts on any archeological potential or known sites on the Wabigoon Forest due to forest management activities. Operators were made aware of these values and too caution to operate appropriately in these areas. Contrary there were identified sites that were not harvested due to soft ground conditions and season of harvest. These areas were not harvested at time in fear of ground disturbance during harvesting activities.

This target has been achieved.

PROVISION OF FOREST COVER OBJECTIVES

Objectives relating to the provision of forest cover for those values that are dependent on forest cover direct the retention or manipulation of forest cover for specific functions. In this plan, the planning team agreed to group all management objectives relating to the provision of forest cover for any natural or environmental function in the previous (a) forest diversity objectives section:

1. *Age Class Structure*
2. *Forest Composition*
3. *Red and White Pine Forest Ecosystems*
4. *Landscape Pattern*
5. *Soil Function*
6. *Wildlife Habitat Function, and*
7. *Fisheries and water Quality Function.*

Objectives relating to the provision of forest cover for social or economic benefits are included in the previous (b) social and economic objectives section:

8. *Sustained Wood Supply*
9. *Personal and Commercial Use*
10. *Working with Aboriginal Peoples*
11. *Tourism and Other Commercial Uses*
12. *Road Accessed (Usage) Recreation*
13. *Ownership and Other Land Use Values*
14. *Cultural Heritage Values.*

During operational planning and implementation of forestry activitities activities were considered.

C. SILVICULTURE OBJECTIVE

The broad silviculture objective for the Wabigoon Forest is to implement planned levels of harvest, renewal and maintenance contained in this forest management plan to aid in the achievement of the fourteen specific management objectives stated under (a) forest diversity and (b) social and economic objectives section (listed above). Targets relating to this broad

silvicultural objective are contained in various targets and strategies associated with the fourteen specific management objectives in (a) and (b).

Overall the assessment of achievement of management objectives is good. Collectively renewal activities are being implemented on the Wabigoon Forest. Artificial regeneration is less than planned due to less than planned harvest, natural ingress of conifer and hardwood and a delay in treatment due to delay in completion of harvest activities due to season and market. Areas are being reassessed in the 2008 plan to determine future treatment is necessary. Overall, the silviculture activities including regeneration, site preparation and tending have been implemented and monitoring and FTG surveys continues on the Wabigoon Forest.

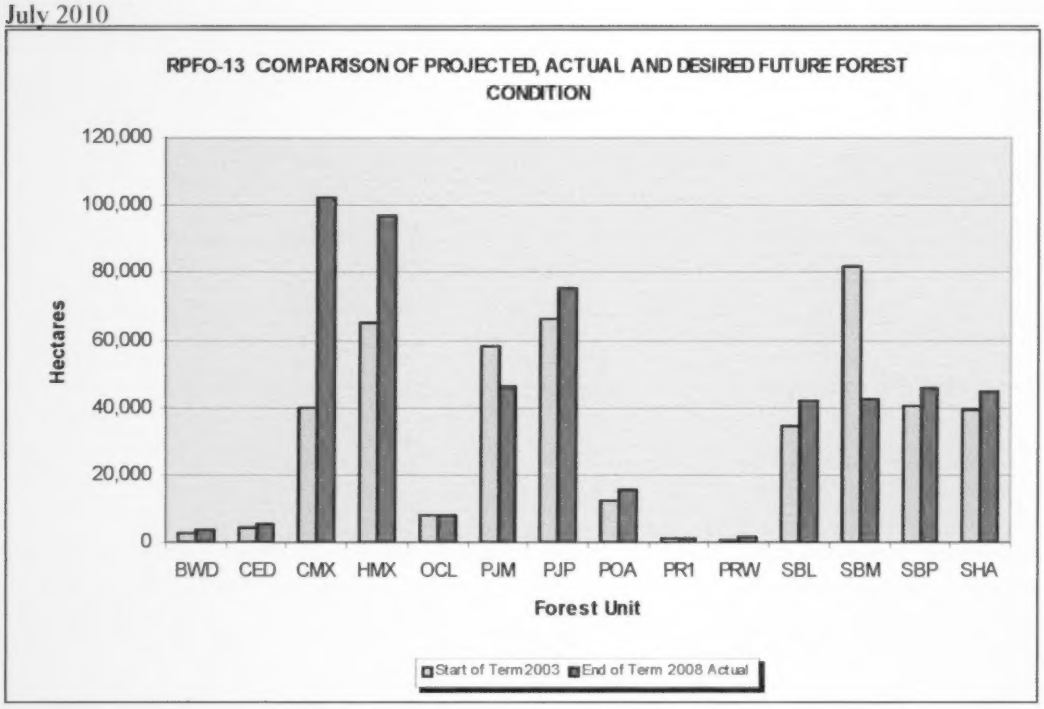
4.6 Determination of Sustainability

The determination of sustainability for the ten year annual report will conclude whether the implementation of the forest management plan has provided for the sustainability (i.e. long-term Crown Forest Health) of the Crown forest on the management unit, through a collective assessment of objective achievement.

This section will discuss the assessment of sustainability of the operations and activities conducted on the Wabigoon Forest during the 2003-2008 planning term. The assessment of success of the plan in achieving forest sustainability is produced through the examination of measurable indicators of the forest sustainability criteria and an analysis of changes to the forest condition and the socioeconomic condition over time. As per the phase in provisions of the 2004 Forest Management Planning Manual for Ontario's Crown Forest (FMPM), RPFO Tables 13. 14, 15, 16, 17 and 18 contain the information used in the assessment to the best information available. These table are meant to be built over successive five-year terms, however since the prior FMP's did not follow the 1996 FMPM, the tables did not include necessary inputs to report on plan terms prior to 2003-2008 FMP. As well, several "actual" values which are to be sourced from the 2008 FMP are not included as the Wabigoon 2003-2008 as there were parts the Wabigoon FMP transitioned to the new manual for parts of the FMP preparation and the information is simply not available for reporting. Therefore, achievement of sustainability can only be measured with the available information. The following information provides an indicator of trends in forest conditions to the extent the available information will allow.

1. Comparison of Projected, Actual and Desired Future Forest Condition for the Managed Crown Forest Area Available for Timber Production

One indicator of forest sustainability is the area of Managed Crown Forest Available for Timber Production. This information is to be summarized in RPFO-13 to determine if major changes in the desired future forest are made between one plan and the next. The figure below shows no drastic changes in available area of timber production from start of term 2003 FMP and the actual end of term (2008).



In most cases, there is slightly more available area at the end of the term except for forest units PJM and SBM. This variation can be attributed to the change in definition of these forest units. The 2003 forest units tolerated more hardwood and the 2008 forest units slightly changed tolerating less hardwood. This is can be the reason the CMX and HMX have a significant spike (hardwood fell to these forest units). However from this information, this sustainability criteria concludes that from plan start of the 2003 FMP to the actual values of the 2008 plan it is in check.

2. Summary Report of Management Crown Forest Area Available for Timber Production

The purpose of table RPFO- 14 is to compare the predicted forest available for timber production forest sustainability criterion of multiple benefits to society. RPFO – 14 shows that the actual area available in the 2003 FMP start is 454,580 ha. Table RPFO-14 shows that the actual area available in 2008 is 520, 826 ha of managed crown forest area available for timber production. This is a difference of about 66,246 ha or 13 % more from one term to the other. Reasons for the increase in forest area available for timber production from the 2003 FMP to the 2008 FMP can be attributed to strategic modeling assumptions and inventory updates. The main difference in available harvest areas due a difference in how unavailable riparian reserves were strategically modeled is the from the following:

During development of the strategic SFMM modeling for the 2003 FMP, riparian reserves were estimated using a standard fixed buffer width applied in the geographic information system to lakes throughout the forest. In the 2003 FMP, no additional area percentages were included in the Areas Reserved From Harvesting input screen. In the 2008 FMP, actual slope-based reserves were determined for the entire forest using a digital elevation model. These

riparian reserves were summarized by forest unit with the resulting accumulating riparian reserve percentage calculated and used in the SFMM modeling. Riparian accumulating reserve percentages ranged from 7-21% area by forest unit. SFMM removes this percentage of accumulating reserve area from the potential harvest area during its calculation of the actual Available Harvest Area by forest unit. Therefore, while the available forest area is higher initially in the 2008 FMP compared to the 2003 FMP, the accumulating reserves correspond to best estimate of slope-based reserves and the resulting available harvest area reflects the removal of riparian reserves from the AHA. This latter approach taken for the 2008 FMP more closely relates to the planning composite inventory classification of available forest area. Riparian area in the 2003 FMP was estimated to be 62,000 ha therefore this difference in riparian area classification causes the majority of the variance in available forest area between plans.

Inventory updates that also affected available forest area include:

- reclassification of barren and scattered and low-stocked area (LOWNAT/LOWMGMT) to productive area (corrected by local knowledge)
- areas declared FTG from one term to the next (surveyed).
- ownership updates reducing area classified as parks, protected areas and patent land (MNR data, minor impact).

3. Summary Report of Landscape Patterns or Forest Diversity Indices

The purpose of Table RPFO-15 is to compare the predicted forest or landscape diversity indices with the actual values and to record whether or not actual diversity indices are acceptable at the end of the planning term. Table RPFO- 15 provides data to help evaluate an aspect of the forest sustainability criterion of biodiversity. The table presents the Shannon-Weiner Heterogeniety Index, the Simpson's Heterogeneity Index and the Shannon Evenness Index for the 1998-2003 and 2003-2008 FMP's. Measurements of landscape patterns and forest diversity indices were not required to be measured in the 2008-2018 FMP and are no longer measured.

4. Summary Report of Habitat for Selected Wildlife Species

The purpose of Table RPFO-16 is to compare the amount of preferred habitat for selected wildlife species which the selected management alternative predicted would be created, to the amount actually created through implementation of the plan. Table RPFO-16 provides data to help evaluate an aspect of the forest sustainability criterion of biodiversity. No predicted values are available for years 2008-2018 because the modeling was done in 10-intervals. Difficulty in completing this table arose when trying to populate 2008 actuals as different species and targets were used from one plan to the other. As mentioned earlier, there is no direct comparison of selected wildlife species from the 2003 FMP to the 2008 FMP. Going forward a trend will be able to be made after 3-4 plans with same species to compare. At this time there is no information that can be compared.

5. Summary Report of Landscape Processes

The purpose of Table RPFO-17 is to summarize information on the landscape processes of the evapotranspiration, water run-off and net carbon assimilation through presentation of values for net primary productivity and water yield over successive planning terms. Table RPFO-17 provides data to help evaluate the forest sustainability criteria of forest conditions and ecosystem productivity.

As discussed above, The Sub-Regional actual for 1998-2003 was 4,612 kgC/ha/year and the 2003-2008 Sub-Regional actual was 3,895 kgC/ha/year. In 10994 the value reported was 696.7 gC/m2/year but methodologies and precision of measured data changed going into the 1998 FMP. This was not a requirement for the 2008 plan and therefore is not reported on.

Water yield measured in second-order watershed area disturbed in the previous 10-years as a percentage of the total productive forest area. Area disturbed in second-order watersheds in the 1988-1998 period (start of the 1998 FMP) was 214.9 kms, or 6.4 % of the total productive area. Area disturbed in second-order watersheds in the 1993-2003 period (start of the 2003 FMP) was 309.6 km2, or 9.2 percent of the total productive area in second-order stream watersheds. This measure was not measured at the start of the 2008 FMP as it was not a requirement.

6. Summary Report of Selected Measurable Indicators of Forest Sustainability Criteria

The purpose of Table RPFO-18 is to record values for the measurable indicators listed in the table in order to provide the basis for an evaluation of trends in these indicators over successive plans. Table RPFO-18 provides data necessary to help evaluate:

- Forest conditions and ecosystem productivity
- Multiple benefits to society
- Soil and water conservation
- Accepting society's responsibility for sustainable development

The first indicator presented in Table RPFO-18 is the Total Productive Crown Forest by Working Group. This was examined over the 2003-2008 and 2008-2018 FMP planning terms. There is approximately an increase in area from one plan to the next of approximately 630 ha increase. The reason for the increase in area between the two plans is a result of improved accuracy of measurement. Information obtained from updated information of barren and scattered and actual productive areas were edited for the 2008 inventory. Also road right of way buffers were larger in the 2003 FMP compared to the 2008 FMP. This information would be factors of increased total productive crown forests. In addition, as mentioned above, the 2003 plan production riparian areas were deducted from the available forest area and in 2008 plan production riparian areas were included thus additional area from one plan to the next.

The next forest sustainability criteria indicator presented in RPFO-18 is the ratio of riparian reserve to length of shoreline adjacent to timber harvest activity. The ratio of area of riparian reserve to length of shoreline adjacent to harvest activity is not available as was not documented in the past.

The percent of Native communities in or adjacent to the Wabigoon Forest which are involved in the Native consultation is the next measurable indicator reported in RPFO-18. Although all groups were asked during planning team meetings and by the MNR senior representative through the planning process, no First Nation group opted for a Native consultation process for any of the three planning terms.

The percent of the forecasted silvicultural budget requirement actually received is the next measurable indicator. For the 1998 FMP, this was 64 % of forecast. For the 2003 FMP this was 55 % of forecast. As discussed in the synopsis, cost savings endeavors have reduced the amount of actual monies required to fulfill the renewal program during the 2003-2008 FMP.

The value added indicator is determined by running the Socio economic Impact Model (SEIM) using actual volumes harvested and the total silvicultural investments during the plan term.

The final indicator of the forest sustainability criteria is the local citizens advisory committee (LCAC) self-evaluation of their effectiveness on a scale of 1-10. This evaluation has been completed for 2008-2018 FMP final submission. The LCC evaluated their effectiveness at 8 of 10. The current LCAC was very engaged in the development of 2003 and 2008 FMP.

Overall, based on the quantitative and qualitative objectives (Table FMP-13) that can be assessed during preparation of the forest management plan, there has been achievement with respect to meeting or exceeding the desirable levels and associated targets for most indicators (forest condition, and goods and services). From a spatial perspective, the objectives related to landscape pattern (disturbance sizes, marten core deferrals) have been achieved or movement towards achievement has been demonstrated through implementation of the Management Strategy. The *Forest Management Guide for Natural Disturbance Pattern Emulation (MNR, 2001)* standard for frequency of planned clearcuts equal to or less than 260 ha (80%) has been met reasonably well with 68% of planned clearcuts under 260 hectares.

The social and economic assessment for this FMP indicates that no significant changes in social or economic benefits are projected for the 2008-2018 plan period, in comparison with the 2003-2023 FMP. The evaluation of the proposed operations for the 2008-2018 FMP indicates that they are consistent with those projected in the Long-Term Management Direction.

Overall, the assessment of objective achievement, the social and economic assessment and the Long-term Management Direction have all demonstrated that the 2008-2018 Forest Management Plan for the Wabigoon Forest has regard for plant life, animal life, water, soil, air, social and economic values, including recreational and heritage values. As a result, it can be concluded that this forest management plan provides for the sustainability of Ontario's Crown Forest on the Wabigoon Forest.

4.6.1 Social and Economic Report is found in APPENDIX I. This report was prepared by district MNR for 2007-2008 Annual Report.

4.6.2 Recommendations

The 2008-2018 FMP has been approved and implemented in April 2008. Recommendations from the 2000-2005 Independent Forest Audit , Final Action Plan have been reviewed, implemented where applicable and documented in the Final Status Report submitted in 2009.

Summary and analysis required for completion of this ten year annual report requires a very close look at the 2003 Wabigoon FMP, the plan targets, objectives, and through successive annual reports, the success in meeting targets and achieving objectives. It also requires a close consideration of its successor, the 2008 FMP. With this information, recommendations could be made regarding management objectives and potential problems or issues that may emerge for future plans. However at this time, some information is not available to date, or was not required in the past and is not available at all to see full trends. In the next reporting periods, trends will be more evident with another five-year plan.

Some trends can be extracted from the results. Harvest area has increased over the past four planning terms. This is a factor of new technology in the field, new MOA and SFL commitments being exercised and the operators understanding the need to utilize all the ground (good and bad ground) instead of leaving by-pass, and changes in business plans. The allowable harvest area trend will not increase but the actual cut may get closer to 100% in future.

Renewal trends are comparable from one term to the other. Another term or two will help show the regeneration success of the forest and will help see a true picture by using same forest units going forward.

Although all silvicultural targets have not been met, this can be attributed to full harvest not met or harvested area not ready for treatment; better site selection to reduce chemical tending; natural conifer and hardwood regeneration that increase natural regeneration; and slow starts for thinning contracts. Site preparation commitments were on plan.

The pre commercial thinning program was less than 50 % of plan. The company continues to work with First Nations as business opportunities through the thinning program. The renewal program is active and is working with backlog of areas from the 2003 FMP for follow up treatment.

Some difficulties in preparing the additional requirements of the 10-year annual report result from the changing requirements of forest management planning over the 15 years. There has been changes in definitions for forest units and wildlife habitat over successive plans the last three plans were written under different manuals as well that asked for different reporting items or were not consistent from one plan to the next. Thus, many measurable indicators of sustainability were not available prior to the 2003 plan, and comparison between the 2003 and the new plan 2008 were difficult because of the changes to inventory and forest unit definitions. Where it was available information from the 2008 plan was used to help show where the trend is heading for the future. It is hopeful that forest units and habitat units used in the 2008 plan will likely remain standard on this management unit, and the measurable

indicators of sustainability will remain relevantly consistent with changing forest management policy in order to get a clearer picture of sustainability over time. Consistency in targets to meet management objectives is also necessary to the long-term sustainability of the landbase.

Market conditions have improved in past year and it is anticipated that full harvest will occur within the 2008 FMP and with a full renewal program implemented to reflect harvest levels. Objectives are being achieved and progress is being made toward the desired forest and benefits.

APPENDIX I

4.6.1 Social and Economic Report

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Social and Economic Description

1 Social and Economic Context for the Management Unit

The socio-economic profile describes a range of social and economic factors for the dependant communities, forest resource-processing facilities, and the primary uses and users of the forest. The socio-economic profile is based upon official Census data collected every five years by Statistics Canada (Stats Can). Census surveys have been conducted in 1986, 1991, 1996 and 2001. The communities listed in the profile are those identified as having wood processing facilities that receive wood fibre from the Wabigoon Forest and directly contributing benefits to the social and economic viability of the community. Six communities are identified in relation to the Wabigoon Forest; Dryden, Ignace, Kenora, Fort Frances, Ear Falls and Thunder Bay.

2 Demographic Profiles

A demographic profile for wood flow from the Dryden Forest is included in Appendix 3. Data for the Districts of Dryden, Kenora, Sioux Lookout, Thunder Bay and Fort Frances are included, as all these areas were directly impacted, to varying degrees, by forest management activities on the Wabigoon Forest during the base year of 2004-2005, which was used for planning purposes. Baseline socio-economic profiles were produced using 2001 Canada Census Community Profile data. These profiles include a description of demographics and migration, the economic environment, non-industrial uses of the forest, and investment intention for the major towns affected by the Wabigoon Forest.

Nine communities are identified in relation to the Wabigoon Forest; Dryden, Ear Falls, Ignace, Kenora, Chappel/Fort Frances, Atikokan, Hudson/Sioux Lookout, Thunder Bay, and Nipigon. Of these six communities, they are reported by district. Dryden District represents Dryden, Ear Falls, Vermillion Bay, Ignace and Wabigoon. The Sioux Lookout District represents the communities of Sioux Lookout and Hudson. Thunder Bay District consists of mainly Thunder Bay and surrounding communities. Fort Frances District represents Fort Frances, Chappel, Atikokan and surrounding communities. Kenora District represents Kenora and surrounding communities. And Nipigon District represents the communities of Nipigon, Red Rock and Terrace Bay. Also two local First Nations, Wabigoon Lake First Nations and Eagle Lake First Nations, derive significant social and economic benefit from the Wabigoon Forest. These First Nations are captured under the Dryden district profile. Migration is referred to as how many people have moved into or locally in the community over the last 5 years. An additional demographic profile, Total – Wabigoon, was prepared to summarize the statistical information for all the affected communities. This summary data for Total – Wabigoon is discussed below to provide social context for this forest management plan.
This data clearly indicates the significance of the forest industry to the Dryden, Kenora, Fort Frances, Sioux Lookout, Thunder Bay, Nipigon districts and the local Aboriginal communities.

The complete demographic profile, in addition to the socio-economic evaluation, is required as part of the forest management planning process and can be found in Appendix 3 and Appendix 4.

2.1.1 Dryden

The town of Dryden is located on Highway 17, centrally located in the Dryden Forest. With a population of 8,198, Dryden is made up of 3,280 dwellings. The population in Dryden is stable and has increased slightly in the past 10 years. The average annual income in Dryden is $32,568, with a total labour force of 4,420 people. Average household size is 2.5, with an average income of $62,625. The average value of a home in Dryden is approximately $134,550. The Aboriginal population in Dryden includes 570 people, with a workforce of 235, 57% of whom are employed, earning an average annual income of $27,241. Women in Dryden make approximately half the average annual income of men ($22,106 versus $43,200), and Aboriginal men make less than the average annual income earned by men in general ($36,560 versus $43,200). Similarly, Aboriginal women make considerably less than Aboriginal men ($14,272 versus $36,560) and less than women in general ($14,272 versus $22,106).

Approximately 53.1% of Dryden's current population have completed post secondary education: 18.7% university degrees, 21.4% college diplomas and 13% trade certificates. The remaining 46.9% graduated from secondary (38.4%) and primary institutes (8.5%).

Approximately 25% of the labour force is employed by the forestry sector (1,050 people), making an average annual income of $55,054, far above the local average. Dryden's employment dependence ratio (EDR) for forestry is approximately 1:20, which is very high. The majority of those working in the forestry sector are employed at the local pulp and paper mill, with a smaller proportion working in logging and support activities. The recent layoffs at the Weyerhaeuser (now Domtar) mill will not make a very significant impact on the number of people relying on forestry work in Dryden, as only 120 people were laid off, resulting in a total of 930 remaining forestry workers, which is still 21% of the labour force. However, having 4% of the labour force laid off is significant, particularly in a relatively small community, where new jobs are not as likely to be available.

Seven percent of the Aboriginal population has knowledge of their traditional language, and over 10% speak an Aboriginal language as their first language, although less than 3% speak an Aboriginal language at home. More than half of the Aboriginal population in Dryden is Métis. Only 7% of the population of Dryden was born outside of Canada, having immigrated from Europe, the United States and Southeast Asia prior to 1991. Of those born in Canada, 53.9% are third generation or more.

2.1.2 Thunder Bay

The City of Thunder Bay, with a population of 109,016, is the largest community in north-western Ontario, located on the western shore of Lake Superior, half-way between Sault Ste. Marie and Winnipeg. The population of Thunder Bay is generally stable, although it has decreased slightly in the last 5 years.

Thunder Bay's labour force is made up of 55,435 people, 91.2% of whom are employed. The average income in Thunder Bay is the third lowest average income of all communities discussed here, at $29,529 per year. Men make approximately $14,000 per year more than women ($22,821).

Less than 7% of the Thunder Bay population is of Aboriginal descent, a population of 7,245 people. The Aboriginal workforce is made up of 2,480 people, with an employment rate of ~43%. The average annual income earned by Aboriginal people in Thunder Bay is closer to that earned by the general population than in the other communities ($22,821), except Atikokan.

The average household income is $29,529, with an average household including 2.4 people. Dwellings cost an average of $127,452. The majority of dwellings were constructed prior to 1970.

The AbitibiBowater pulp and paper mill complex (previously operated as Bowater Canadian Forest Products), located in Thunder Bay, is the largest in Canada, and employs approximately 700 people. Until recently the mill complex employed ~1,200 people; ~500 were laid off in May 2006 with the closure of the Kraft A paper mill. Prior to the Kraft A mill closure, approximately 4% of Thunder Bay's workforce was directly employed by Bowater. The AbitibiBowater sawmill is also located in Thunder Bay (previously operated as Bowater), along with another AbitibiBowater sawmill (previously operated as Abitibi-Consolidated) and three Buchanan mills - Great West Timber, Buchanan Northern Softwoods (formerly Hardwoods) and Northern Sawmills. Abitibi Bowater main administration offices are also located in Thunder Bay. As a result, the main employment sector that Thunder Bay relies on is forestry with an EDR of ~1:6. In 2001, 3,855 people were employed in forestry (7.6% of the population), making an average of $47,458 per year. Of these, the majority worked in a pulp mill, sawmill, or in support activities. This will have decreased as a result of the closure of the Kraft A paper machine. The second highest EDR, ~1:5, belongs to the hunting and fishing sector.

Approximately 58 percent of Thunder Bay residents have received post secondary education through university (20.6%), college (24.7%) or trade (13.2%). The remaining 42 percent completed secondary (31.5%) or primary education (10%).

Nearly 12% of the population of Thunder Bay was born outside of Canada, the majority having emigrated from Western Europe prior to 1991 (67%). The remainder of those born outside Canada came from diverse locations around the world, but predominantly Eastern Europe and the United Kingdom.

Approximately 16% of Thunder Bay's Aboriginal population has knowledge of their Aboriginal language, and 8.9% speak it at home. The official language in Thunder Bay is English.

2.1.3 Fort Frances

Fort Frances district historically has not received large amount of wood volume from the Dryden forest. More recently, volume flows to Fort Frances have increase based on wood prices. The

current forecast of wood flow suggests Fort Frances District to be the third highest dependency on Dryden Forest wood. The demographic profile for the Fort Frances district identifies a population of 12,857 people. Population trends suggest a slight decrease in total population over time. Migration is estimated at 27.9% over five years. Population distribution by age and gender is represented by a 50.2% male population and age distribution is dominated by the 35-45 year old age group. The 0-10 and 20 – 30 year ages groups are slightly lower for both females and males whereas the 50+ age group is more male dominated and significantly lower over all age groups. The labour force is well represented with a 91.4% employment rate where the average individual income is $27,680 and average household income is $53,806. Community dependency in logging and forestry industry is 17.1% or 1200 people employed. The forest industry dependencies are dominated by logging at 49.3%, and sawmills at 48.1%. Pulp and paper is represented at 21.8% greater than provincial. In total, employment in the forestry sector represents 22.1% of Fort Frances district labour force.

2.1.4 Atikokan

Atikokan is located just north of Highway 11 on Highway 11B/622. Atikokan has a population of 3,632 and includes 1,500 dwellings. The population has decreased slightly over the past 20 years, with the most rapid decrease occurring from 1996 to 2001 (11.32%). The average income is $27,278 (the second lowest of the communities discussed here), with an average household income of $50,411. The average value of a house is $70, 242; 72.4% of houses were built prior to 1960. The population is approximately 50/50 male and female, with women earning an average of approximately $14,500 less per year than men ($34,500 versus $20,011). Aboriginal men and women have comparable average incomes with men and women in general in Atikokan; Aboriginal men make an average of $31,687 per year; women make $18,044.

The labour force in Atikokan is made up of 1,795 people, of whom 12% are unemployed. The majority of the population is employed in sales (25%), trades (21.3%) or processing (17.7%). Atikokan has an employment dependency ration of 1:21 for forestry, with 475 people employed in that sector (26.5% of the labour force). Of these, the majority work in sawmills or in veneer, plywood or engineered wood production. The forest sector in Atikokan has a 91.6% employment rate, with workers earning an average of $41,588, significantly more than the local average.

In terms of education, 38.5% of people in Atikokan completed primary school, 11.9% completed secondary school, 18.5% completed college, 19.1% are trained in a trade, and 12.1% completed university.

Atikokan has an Aboriginal population of 260, none of whom speak an Aboriginal language. The Aboriginal population has a labour force of 140 people, 57.5% of whom are employed. Approximately half of the Aboriginal population identifies as Métis.

Approximately 5% of the population in Atikokan was born outside Canada, half of whom immigrated prior to 1991, coming mainly from Europe and the United States, with a few people from Africa. Of those born in Canada, 57.7% are at least third generation Canadians.

2.1.5 Kenora

The City of Kenora is located on the north shore of Lake of the Woods, on the Trans-Canada Highway. Kenora has a population of 15,838 people, with 6,315 dwellings. The average value of each dwelling is approximately $122,608. Kenora's labour force is 8,315 people (91.5% employed), with trades being the most common occupation. The average income is $31,069 per year, with men earning an average of $38,262, which is $14,000 per year more than women. The average household contains 2.5 persons and receives an approximate annual income of $59,325. As noted in other locations, the Aboriginal population (1,695 people, with a workforce of 760) earns considerably less per year than the population in general ($22,976 versus $31,069), with Aboriginal men earning approximately $10,000 per year more than Aboriginal women. Sixty percent of the Aboriginal workforce is employed. The population in Kenora has not changed significantly over the last 20 years.

The Abitibi pulp and paper mill in Kenora recently closed, laying off approximately 300 people (see Part 1). Prior to the mill closure, approximately 7% of the labour force was employed by the forestry sector (560 people); these workers were earning considerably more than the local average and were employed as loggers or at the pulp and paper mill. The mill closure leaves Kenora with approximately 260 people employed in forestry, or approximately 3% of the labour force. This may result in a decrease in population as former mill employees seek work elsewhere. However, Kenora has a relatively diverse economy, relying upon a number of sectors, including mining and metals, equipment manufacturing, high technology, tourism and agriculture and food.

The Aboriginal population in Kenora has a stronger knowledge of their traditional language than is found in Dryden, with approximately 14% identifying an Aboriginal language as their first language, and approximately 12% speaking their Aboriginal language at home. Slightly less than half of the Aboriginal population in Kenora is Métis. The Aboriginal community has a labour force of 760 with an average income of $22,976. Aboriginal women make considerably less ($18,467) than Aboriginal men ($27,519).

Ninety-four percent of the population of Kenora was born in Canada, most of whom are third generation or greater. Of those who were born outside Canada, the majority came from Europe, followed by the United States and Southeast Asia. A few people came to Kenora from Africa, the Caribbean and central Asia. The official language in Kenora is English.

Approximately 40% of the population ended their schooling following high school, 22% attended college, 16% attended university, and 12% were trained in a trade.

2.1.6 Sioux Lookout

Sioux Lookout is located north of Minnitaki Lake and south of Lac Seul, at the junction of the CN railway line and Highways 72, 516, 642 and 664. Hudson is west of Sioux Lookout along Highway 664, south of Lost Lake, and is included in the demographic profile for Sioux Lookout. The Mackenzie Forest Products Inc. mill is located in Hudson.

Sioux Lookout is home to 5,336 people, living in 1,925 dwellings, with a labour force of 2,870, earning an average of $32,678 per year. The incomes earned by men versus women are more equitable in Sioux Lookout than in the other communities discussed here, with men earning less than $6,000 more than women ($29,705) per year. Aboriginal men and women also make similar incomes, although both are lower than the local average (an average of $23,398 per year, with Aboriginal men making approximately $1,000 more than Aboriginal women ($22,868 per year). The population of Sioux Lookout is generally stable, having increased slightly over the past 20 years. The average dwelling in Sioux Lookout costs approximately $151,399. Household income, based on an annual income, is in the order of $65,238. Approximately 15% of the population earns over $100,000 per year.

Approximately 19.1% of Sioux Lookout's population attended university, 23.1% attended college and 11.4 % studied a trade. Also, 36.1% of the population graduated from secondary school while 10.3% completed primary school.

Approximately 12% of the workforce in Sioux Lookout is employed in the forestry sector (325 people), earning an average of $42,912 per year. The majority of these workers are employed in logging operations or work at the sawmill. Forestry is the main employment sector Sioux Lookout, with an EDR of ~1:9, followed by health with an ERD of ~1:3.

The Aboriginal population in Sioux Lookout includes 1,295 people, 560 of whom are part of the local workforce. Approximately 30% of the Aboriginal population in Sioux Lookout has knowledge of an Aboriginal language, with 23% speaking an Aboriginal language at home.

Over 90% of the people living in Sioux Lookout were born in Canada. Of those born outside of Canada, over 60% have been in Canada for more than 15 years, and 37% of those born outside of Canada are originally from the United States, with the remainder arriving from Europe, Southeast Asia and the Caribbean. The official language is English.

2.1.7 Wabigoon Lake Ojibway Nation (Wabigoon Lake 27)

The Wabigoon Lake Ojibway Nation occupies the Wabigoon Lake No. 27 Reserve. The reserve is located 19 kilometres southeast of Dryden on Highway 17. The people of the community are descendants of the Salteaux Ojibway people. The Wabigoon Lake reserve was first laid out in 1884 and was confirmed by the Ontario government in 1915. The Wabigoon Lake Ojibway Nation is affiliated with the Bimose Tribal Council and Grand Council Treaty No.3. The native language of the people is Ojibway.

The Wabigoon Lake Ojibway Nation has a total registered population of 147. The population on-reserve is approximately 50/50 in terms of gender[1]. Based on this census, the majority of the population is under 50 years of age. The median age of population is 32 with 77% of the population over the age of 15 years2. There are 60 private households housing approximately 40

[1] INAC, 2006.

[2] Statistics Canada, 2006. Available at *www12.statcan.ca/english/Profil01/CP01/Details/* or through a link from INAC at *http://sdiprod2.inac.gc.ca/FNProfiles/FNProfiles_DETAILS.asp?BAND_NUMBER=157*

families 10 with an average family size of 2.8 people. The majority of the population have English as their mother tongue (about 115 people) with 35 people having Ojibway as primary language. No income related values are available through Statistics Canada.

The educations background of the community reflects approximately 50 % of the people over 15 years of age do not have a formal certificate, diploma or degree. Thirty four percent of are identified as having some form of post secondary education. Of the working population, 15 people work in social science, education, government service and religion, 10 in management occupations, 10 in business, finance and administration, 10 in sales and service, 20 in occupations unique to a primary industry (e.g. logging), and 15 in trades, transport and equipment operators and related occupations. Community employment rate is 46% with employment in Agriculture and other resource –based industries, manufacturing, retail trade, health care and social services, business services and other service areas.

2.1.8 Eagle Lake First Nation (Eagle Lake 27)

The Eagle Lake First Nation occupies the Eagle Lake No. 27 Reserve. The reserve is locates approximately 30 kilometres southwest of Dryden on Highway 594. More specifically, it is located on the northeast shore of Eagle Lake. The Eagle Lake First Nation is affiliated with the Bimose Tribal Council and Grand Council Treaty No. 3.

Based on the 2006 Census, the reserve population is 232 people with a 54/46% ratio of male/female population. The median age of the population is about 35 year old with highest concentration of people between 5 to 20 years of age and 30 to 50 years of age. The main language of the population is English with approximately 20 % of the people declaring Ojibway as mother tongue. The community has approximately 85 private households, of which 35 are considered family households. Average household size is 2.7 people.

The community education and employment characteristics reflect improvements from the 2001 census. The total population 15 years and over is approximately 175 people. Of the 175 people 42 % have post secondary education. The labour force of approximately 95 people reflects a 41.7% employment rate. The major occupations are in Management (10 people), Social Science, education, government services and religion (20), sale and services (20), trades, transport and equipment operators (10), unique primary industry (15) and processing, manufacturing and utilities (10). The major industries supporting employment are Agriculture and other resource based industries (15 people), construction (10), retail trade (10), health care and social services (15), educational services (10), business services (10) and other services (40 people).

2.1.9 Lac Seul First Nation (Lac Seul 28)

Lac Seul First Nation reserve is approximately 15 kilometres west of Sioux Lookout (the nearest service center) and is accessible via Highway 664. There are three distinct settlements located within the reserve: Frenchman's Head, Kejick Bay, and Whitefish Bay. Lac Seul First Nation is affiliated with the Independent First Nations Alliance and adheres to Grand Council Treaty No. 3.

Lac Seul First Nations has a total population of 2873 with approximately 785 people on reserve[3]. The most recent 2006 Census suggest 821 people reside in the community. Of that population gender ration is 52/48 male/female. The majority of the population is in the younger age classes with a population median of 23.6 years of age. The total population 15 years and over is about 560 people. The majority of the population speak English with 555 people declaring English as mother tongue and 270 people as Ojibway as mother tongue. Ten people described as being neither English nor French speaking.

The community has approximately 225 private dwellings with approximately 230 private households. The households are represented by approximately 120 families, 35 one person households and 65 other household types. The average household size is 3.6 people. Median income in 2005 for all private households is $34,176 per year. Median earnings are $15,546 per year. Of the 555 people over the age of 15, 345 people have not certificates, diploma or degrees and 115 people possess post secondary education.

The local labour force consists of about 370 people, of which 315 are employed reflection a community employment rate of 56.2 %. The community has representation in most occupations, but is highest in trades, transport and equipment operator and related occupations with 30% of the workforce, 23% in sale and service occupation and 17% in social science, education, government services and religious occupations. Labour forces by industry reflect healthcare and social services as primary industry at 23% or workforce, construction at 17%, business services at 11% and educational services at 8%.

2.1.10 Wabauskang First Nation

The Wabauskang First Nation occupies the Wabauskang No. 21 reserve. The reserve is located 67 kilometres northwest of Dryden off of Highway #105. The Wabauskang First Nation is affiliated with the Bimose Tribal Council and Grand Council Treaty #3.

2.1.11 Grassy Narrows First Nation (English River 21)

The Grassy Narrows First Nation (Asubpeeschoseewagunk Netum Anishinabek) occupies the English River No. 21 reserve. The reserve is located 80 kilometres north of Kenora, off the Jones Road off Highway #671. The Grassy Narrows First Nation is affiliated with the Bimose Tribal Council and Grand Council Treaty #3.

The community of Grassy Narrows has an approximate population of 625 people, 51% of which is male and 49% female. The age demographic reflects a younger population with a median age of 23.2 years. The majority of the population speaks Ojibway with 50.8 % of the population describing Aboriginal Language as first learned and 60% speak it in the home. Only 41% considers English as primary language.

[3] INAC: http://sdiprod2.inac.gc.ca/FNProfiles/

Grassy Narrows had approximately 185 private dwelling and 180 households. Seventy five households are considered family households. The median income in 2005 for all private households was $17,824 per year. Average individual income is $16,040 per year with males averaging $13,939 and female averaging $18,715 per year.

The education level within the community appears to be increasing. The census suggests 69% of people over 15 have only primary educations, but 21% of people have a post secondary education. The overall labour force for the community is 225 with and employment level of 34.5%. Occupations vary with Sales and services leading at 36%, followed by Social , education and government services at 28% and 10% in trades. Only 8% were identified in management occupations and 10% in primary industries and processing/manufacturing. The majority of labour force is concentrated in the health care, social services, education and business industries. Sector dependencies reflect 4.3 for educational services, 2.3 for health Care and Social Services, 1.3 in agriculture and resource-based industries and 1.2 in other services.

2.1.12 Naotkamegwanning First Nation

The Naotkamegwanning First Nation has three reserves:

1. The community settlement is at the Whitefish Bay No. 32A site, located approximately 8 kilometres east of Sioux Narrows accessible via Gaudry Road off Highway # 71.
2. Whitefish Bay No. 32C, located 65 kilometres southeast of Kenora on Lake of the Woods.
3. Yellow Girl Bay No. 32B located 32 kilometres southeast of Kenora on Lake of the Woods.

Sabaskong Bay No. 32A can be accessed via Highway 71. This First Nation is affiliated with the Bimose Tribal Council and Grand Council Treaty #3.

The Naotkamegwanning First Nation has approximately 620 people with 51% male population and 49% female. The age profile for the community is mostly a younger demographic with a median age of 22.6 years. The primary language of the community is English with 52.4% of the population speaking English and 47.6% of the population speaking aboriginal languages. Thirty-nine percent of the community describes Ojibway as first learned language. The average education level within the community is low with only 27% of people with post secondary education and 51% with only primary education.

The average individual income is $15,538 per year with little difference between males and females average income. The labour force is 235 people and an employment rate of 48.8%. The main occupations are in Sales at 39.5%, Social services at 27.9% and trades at 14%. The labour forces dependencies are highest for Educational services at 2.8, healthcare and social services at 2.7, financial and real estate at 1.3 and construction industries at 1.2.

3 Description of the Industrial and Non-Industrial Uses of the Forest

To understand the importance of the forestry sector to the local, regional and provincial levels, it is important to know who the various users of the forest are It is also important to understand what the flow of goods and services are, in relation to the various users of the forest. The economic environment in the Dryden District is made up commercial and non-commercial uses of the forest. The commercial uses are defined as being industrial and non-industrial.

The information provided in this section list the forest users by the users groups. Requests for information were sent out to industry, forest users and the public. They were also made available through public information centres. For whom data was available through the Dryden District MNR or was provided by the user or user groups, the information is summaries below. Information which has not been provided may result in some user groups being under-represented.

3.1 Timber

3.1.1 Holders of Overlapping Licences, Forest Resource Licences and Wood Supply Commitments

The information presented in this section is based on MNR and the Sustainable License Holders (Domtar) records. Additional information was derived from the experience of the foresters and relevant personal whom have been involved with the management of the Wabigoon forest for many years.

3.1.1.1 Holders of Overlapping Licences

The Wabigoon Forest is operated under the Sustainable Forest License #541593 since April 24, 1997. The original SFL Holder was Avenor Inc. Since 1997 several transfers of the license have occurred. In 1998, Avenor was transferred to Bowater and in 1999 was transferred to Weyerhaeuser Company Limited. Weyerhaeuser has held the license until recently. The license was transferred to Domtar Inc. on March 2007.

Patricia Logging, Raleigh Falls Timber, Raleigh Falls Timber Third Party and Noopimiing Anokeewin operate under Domtar's Sustainable Forest Licence and will harvest approximately 98 percent (%) of the allocated harvest volume. Eagle Lake Logging operate under an Overlapping Forest Resource Licence and will make up the remaining 2 % allocated volume.

Eagle Lake Logging in the Annual Work Schedule for 2004-05 was approved to harvest 26600.00 m^3 of coniferous species and 1800.00 m^3 of hardwood species. Of the approved harvest volume, Eagle Lake utilized 5813m^3 or 22 % of the conifer volume and 365m^3 or 20 % of the hardwood volume.

3.1.1.2 Wood Supply Commitments

The Wabigoon Forest has four wood supply commitments under the Appendix E of the SFL. These commitments are to Levesque Plywood Limited, Bowater Canadian forest Products Inc., Abitibi Consolidated Company of Canada and Ainsworth Lumber Co. Ltd. Any unassigned timber is utilized to supply the Domtar mill in Dryden and Ear Falls. Any additional wood not utilize is available through the open market, traded with other mills for suitable wood fiber or consumed as fuelwood and biofuel. Wood supply commitments are included in the Schedule E of the Sustainable Forest License and are summarized below:

1) To make wood fiber available to Levesque Plywood Limited through a long term memorandum of agreement (MOA) in accordance and consistent with Supply Agreement 536232 date December 5, 2005.
   - Note that Levesque Plywood Limited (Weyerhaeuser) was sold to Nipigon Multiply Forest Products (subsidiary of Columbia Forest Products) in 2007. Shortly after the mill was destroyed by fire and was not rebuilt. Currently no MOA to supply fiber to Multiply Forest Products is in place.
2) To make available annually, through long term MOA, 200,000 m3 of softwood fiber, from the Trout Lake and Wabigoon Forests to Bowater Canadian Forest Products Inc. (now AbitibiBowater) for use in their pulp and paper mill located in Thunder Bay.
   - The allocation of this commitment is mainly being allocated from the Wabigoon Forest due to its proximity to Thunder Bay in comparison to the Trout Forest.
3) To make available annually, through long term MOA, up to 186,000 m3 of conifer fiber, from the Trout Lake and Wabigoon Forests to Abitibi-Consolidated Company of Canada (now AbitibiBowater) for use in their mills located at Kenora and Fort Frances mills.
   - The allocation of this commitment is mainly from the Trout Forest due to economic viability of meeting the Bowater Commitment from the Wabigoon Forest.
4) To make wood fiber available to Ainsworth Lumber Co. Ltd through long term MOA in accordance and consistent with Supply Agreement 536238 dated December 5, 2005.

3.1.1.3 Volume of Wood from the Forest Utilized by Each Receiving Mill

The majority of wood harvested on the Wabigoon Forest is processed at the Domtar pulp and paper mill in Dryden, the Domtar sawmill in Ear Falls, Trust Joist (Weyerhaeuser) in Kenora, AbitibiBowater mill in Thunder Bay, Atikokan Forest Products, McKenzie Forest Products in Hudson and Ainsworth Engineered in Barwick. Smaller volumes have been received at other mills in the region.

The following outlines the volume of conifer and hardwoods received by mills over the last five years:

Table 1. Five Year History of Wood Utilization by Mills from the Wabigoon Forest

Forest Product Company	*Mill Location*	*Wood Type*	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
Weyerhaeuser Ltd. (Now Domtar)	Dryden Sawmill	Conifer	97529	0	0	0	0
		Hardwood	0	0	0	0	0
	Dryden Pulp & Paper	Conifer	311794	331609	281352	188190	394388
		Hardwood	212274	180378	152129	146844	154969

	Ear Falls Sawmill	Conifer	59822	87409	112850	101260	46843
		Hardwood	0	0	0	0	0
Trust Joist (Weyerhaeuser Ltd.)	Kenora	Conifer	0	0	0	0	0
		Hardwood	2083	32757	36919	3162	0
Abitibi Consolidated Inc. (Now Abitibi Bowater)	Kenora Pulp & Paper	Conifer	0	1343	309	0	0
		Hardwood	0	0	0	0	0
	Fort Frances Pulp & Paper	Conifer	40119	18899	22338	1745	439
		Hardwood	0	0	0	40	0
Ainsworth Engineered Corp.	Barwick	Conifer	0	0	0	0	0
		Hardwood	0	791	542	0	0
Atikokan Forest Products	Atikokan	Conifer	7481	1450	30237	88320	0
		Hardwood	0	0	0	0	0
Bowater Inc. (Now AbitibiBowater)	Ignace	Conifer	0	11701	23502	20772	0
		Hardwood	0	0	0	0	0
	Thunder Bay Sawmill	Conifer	204901	132496	186465	109990	0
		Hardwood	0	0	0	0	0
	Thunder Bay Pulp & Paper	Conifer	6750	52000	935	0	0
		Hardwood	115	0	0	0	0
Brushmat Material/Camp Construction and Bridges		Conifer	0	0	373	66	42
		Hardwood	0	37	0	5	6
Devlin	Kenora	Conifer	456	1309	0	0	0
		Hardwood	0	0	0	0	0
Levesque Plywood Limited	Nipigon	Conifer	0	0	0	0	0
		Hardwood	0	2095	1830	0	0
McKenzie Forest Products Ltd.	Hudson	Conifer	60	2377	109029	93491	9608
		Hardwood	0	0	0	0	0
Multiply Forest Product Inc.	Nipigon	Conifer	0	0	0	0	0
		Hardwood	340	2095	1830	1271	0
Norampac Inc.	Red Rock Pulp & Paper	Conifer	0	0	1071	0	0
		Hardwood	0	0	0	0	0
Norlaine Forest Products	Norman Burkholder, Mine Centre	Conifer	0	167	0	0	0
		Hardwood	0	0	0	0	0
Northern Sawmill Inc.	Thunder Bay	Conifer	3736	0	0	0	0
		Hardwood	0	0	0	0	0
Skene Lumber	Oxdrift	Conifer	112	51	0	0	0
		Hardwood	0	0	0	0	0
Rugby Cedar	Oxdrift	Conifer	0	60	0	0	52
		Hardwood	0	0	0	0	0
Commercial Fuelwood	All	Conifer	0	0	0	0	82
		Hardwood	0	0	211	0	0
Personal Use	Other Product & Fuelwood	Conifer	73	54	43	67	45
		Hardwood	861	895	1075	823	802
Surplus		Conifer	0	0	0	0	0
		Hardwood	0	0	0	0	0
Total			948506	859973	963040	756046	607276

3.1.1.4 Destinations of Chips Produced by Local Sawmills that Use Wood from the Forest

The chips produced at the Ear Falls Weyerhaeuser sawmill are transported to the Dryden Domtar pulp mill. Oxdrift Tractor disperses their chips to local farmers. Bowater in sawmill Ignace mainly send chips its Thunder Bay mill. In 04/05 Ignace Bowater Sawmill sent a total of 34,396m3 to Bowater Thunder Bay compared to 75,315m3 in 1999/2000. Buchanan sawmill regularly ship chips to AbitibiBowater Pulp and Paper mill in Thunder Bay, however when

market permit, chips are delivered to Domtar in Dryden. Most chips generated by sawmill and veneer mills that receive wood from Wabigoon generally send their chips to Abitibi Bowater or use them for hog fuel. Accurate amounts of chips being delivered to different mills is difficult to assess. Due to changing markets, facility operations situation and types of wood being processed, chip deliveries may vary significantly from year to year.

3.1.1.5 Mills that Receive a Substantial Amount of Wood from the Management Unit

Due to mill closures and downsizing, number of employees at each mill may be less than stated. Please note that some of the mills have closed in the last year as captured below.

The following is a list of mills which receive substantial amounts of wood from the Management Unit.

- Domtar (Dryden) – Previously Weyerhaeuser Ltd.

Number of Employees	Mill - 330 Woodlands - 350
Products:	Uncoated freesheet: Xerographic, opaque, offset and pulp
Production Capacity:	Annual paper production capacity of 151,000 tons. Annual pulp production capacity of 319,000 tonnes- includes 197,000 tonnes of mill trade pulp. 1 pulp line and 1 paper machine.
Major changes to mill:	In March of 2007, the transfer from Weyerhaeuser to Domtar Inc. was complete. In 2007, the Weyerhaeuser Pulp and Paper mill shutdown one of its two paper machines. Late 2007, early in 2008, the larger of the two machines was shutdown and machine 1 was restarted. Also two sheeter machines were shutdown permanently. The recent change due to machine shutdowns has resulted in about 125 job losses. In December of 2008, the second paper machine was shutdown resulting in approximately 195 jobs lost.

- Domtar (Dryden) – Previously Weyerhaeuser Ltd. (current as of 2006)

Number of Employees:	200
Production by Product:	Grades: Premium, J-Grade, Stud, #3 & Btr, Economy Dimensions: 2x3, 2x4, 2x6 Lengths: 6' to 9'
Capacity:	Stud Mill: 210 MMfbm Chips: 155 Modmt Sawdust & Shavings: 60 Modmt
Chip Destinations:	Chips produced at the Ear Falls mill are generally shipped to Domtar Pulp and Paper mill in Dryden
Major changes to mill:	In March of 2007, the transfer from Weyerhaeuser to Domtar Inc. was complete. In April of 2008, the Ear Falls mill reduced production by a shift, resulting in temporary 25 layoffs.

- Abitibi Bowater Inc. Pulp and Paper Mill – Thunder Bay (formerly Bowater Inc.)

Number of Employees: Mill: @700 Woodlands: @ 350
Products: Newsprint and Market Pulp
Production Capacity/yr: 515,000 tonnes (567,700 short tons) of newsprint,
Kraft hardwood – 190,000 tonnes per year
Kraft softwood – 350,000 tonnes per year
Major changes to mill: Since 1989, investments of about $500 million (US$325 million) have been spent on a new paper machine, a de-inking plant, a thermo-mechanical pulp plant, a secondary effluent treatment system, and a chip handling system. The Kraft A paper mill was closed in 2006, laying-off approximately 500 people. In October of 2007, Bowater Inc and Abitibi Consolidated merged to become AbitibiBowater Inc

- Abitibi Bowater Inc. Sawmill – Thunder Bay (formerly Bowater Inc.)

Number of Employees: @200 employees
Products: SPF Dimensional
1x3, 2x3, 2x4 and 2x6 SPF lumber
Standard 92-5/8" and 96" P.E.T. (precision end trim) stud lengths account for approximately 45% of the production. Longer length stud trims (108" to 120") are produced to meet the growing demand for higher ceilings in the North American home market.
Production Capacity/yr: approximately 225 million FBM per year
Major changes to mill: Bowater recently invested approximately $100 million in the construction of state of the art sawmills in Thunder Bay and Ignace, which produce spruce, pine and fir lumber. In October of 2007, Bowater Inc and Abitibi Consolidated merged to become AbitibiBowater Inc.

- AbitibiBowater Inc (Ignace Saw) - Previously Bowater Inc. **Currently Closed**

Number of Employees: mill 63 Woodlands: 61
Production by Products: Variable Dimension Lumber, 85 million FBM
Chips as secondary product
Major changes to mill: Bowater recently invested approximately $100 million in the construction of state of the art sawmills in Thunder Bay and Ignace, which produce spruce, pine and fir lumber. The mill was shutdown in December or 2006. The Abitibi Bowater Ignace sawmill is currently closed indefinitely. In October of 2007, Bowater Inc and Abitibi Consolidated merged to become AbitibiBowater Inc.

- Abitibi-Consolidated Company of Canada – Fort Frances

Number of Employees: Mill: 720 Woodlands: 30
Products: Very High Bright uncoated groundwood grades, SCA+ and NBSK market pulp. Key paper grades are high quality heatset, supercalendered SCA+ and coldset papers.
Production Capacity / Yr: Commercial printing papers: 286,000 MT
Market NBSK: 99,000 MT
Total: 373,000 MT

Major changes to mill: In 2007, the company investment of $84.3 million in a new biomass energy generator. The generator is forecasted for completion in fall of 2008. . In October of 2007, Bowater Inc and Abitibi Consolidated merged to become AbitibiBowater Inc.

- Abitibi-Consolidated Inc. (Kenora) **Permanently CLOSED 2005**

  Number of Employees: Mill-530 Woodlands- 14
  Production by Products: Newsprint (up to 50% recycled content), lightweight newsprint, uncoated groundwood including bulky and high bright products.
  Production Capacity / Yr: Newsprint: 300,000 MT and Value-Added: 22,000 MT
  Major changes to mill: The mill was permanently shutdown since December 2005. Mill is currently being demolished. In October of 2007, Bowater Inc and Abitibi Consolidated merged to become AbitibiBowater Inc.

- McKenzie Forest Products – Sioux Lookout (Hudson)

  Owned by: Buchanan Forest Products
  Number of Employees: Mill – 410 Woodlands - 380
  Production by Products 2X4 SPF studs
  Major changes to mill: Intermittent mill closure due to economic environment of the forestry industry. Mill has been shutdown since September 2008.

- Rugby Cedar Works (Rugby)

  Number of Employees: 2
  Production by Products: Cedar Lumber, Shingles, and fuelwood as secondary product

- Trus Joist (Kenora)

  Owned by: Weyerhaeuser
  Number of Employees: Mill 231 Woodlands 7
  Production by Product: Laminated Strand Lumber
  Major changes to mill: The mill finished construction and went online in 2003. In January of 2008, a temporary shutdown will see the lay-off of 100 workers. 41 other jobs will be lost permanently. 100 workers will continue to work during the downtime.

- Ainsworth Engineered Corp (Barwick)

  Number of Employees: Mill – 150
  Production by Product: value-added OSB products - including premium floor underlayment, rimboard and webstock, in addition to commodity structural sheathing panels.
  Production capacity: 470,000 msf-3/8" per year

- Atikokan Forest Products Ltd. Sapawe

  Owned by: Buchanan Forest Products
  Number of Employee's: Mill: 245 Woodlands: 10

Production:	107,766 Mfbm/year of SPF lumber, conifer chips (secondary)
Products:	SPF 2x3, 2x4, 2x6, 2x8, 2x10 and 2x12 Dimension Lumber 1x4 and 1x6 boards Red Pine- 1x4, 1x6, and 1x8 boards
Lengths Produces:	7ft., 8ft., 10ft., 12ft., 14ft., and 16ft.
Grades:	SPF #2 & Better "Premium", MSR 1650 and 2100, #2 & Better, #3, Utility and Better, Economy, #2 Common and Better, #3 Common, and #4 Common Red Pine D& Better, #2 Common and Abetter, #3 Common, #4 Common

- Northern Sawmills Inc – Thunder Bay

Owned by:	Buchanan Forest Products
Number of Employee's:	Mill: 225 Woodlands: 25
Production by Products:	SPF (Sb & Pj) 2x3, 2x4, 2x6, 2x8, 2x10 and 2x12 Dimension Lumber 1x4 and 1x6 boards White Cedar- 2x4 & 2x6 Decking 1x4 & 1x6 rough
Grades:	SPF #2 & Better "Premium", MSR 1650 and 2100, #2 & Better, #3, Utility and Better, Economy Red Pine D& Better, #2 Common and Abetter, #3 Common, #4 Common

- Norampac Inc. – Red Rock – Currently shutdown

Owned by:	North American Logistic Services Inc.
Number of Employee's:	Mill - @ 300
Production by Products:	Kraft Linerboard
Major changes to mill:	Mill was sold from Cascades Canada Inc. to North American Logistic Services Inc. in September of 2007. The mill was indefinitely shutdown since October of 2006. Approximately 300 employees laid off.

- Nipigon Multiply Forest Products.

Owned by:	Columbia Forest Products
Number of Employees:	Mill – 110 Woodlands – 35 Staff - 12
Production by Products:	21.3 million mbf of 3/8" plywood 1.3 mbf of 3/8' Veneer 35,000 m3 of chips 15,000 m3 green tone Hog Fuel
Major changes to mill:	Mill was purchased by Columbia Forest Product from Weyerhaeuser Co. Ltd in February 2007. Mill was destroyed by fire in February of 2007. The mill has not been rebuilt resulting in 130 jobs lost.

3.1.1.6 The Actual Harvest Volume, the Value of Stumpage and the Average Stumpage Paid per Cubic Metre.

The following tables depict the total harvest volume, the value of stumpage and average stumpage paid per cubic meter over a five year period. The three components that make up the stumpage matrix are Crown Revenues, Forest Renewal Trust and Forestry Futures Trust Fund. Crown Revenues is composed of the minimum stumpage fee per cubic meter and the selling price of product per month. The fund used for the renewal of harvested areas is associated with the Forest Renewal Trust Fund while the Forestry Futures Trust Fund is for areas that have been depleted by nature.

The following tables illustrate the Crown Revenues and stumpage fees collected by species volume over a 5 year period starting in 2000.

In the 2008 FMP, Crown Revenues were forecasted using the total of the minimum charge, and the residual component related to the implicit price index. The current minimum and residual component, using the OMNR (June, 2008) Ontario Stumpage Matrix equated to the following rates per cubic metre of harvested volume:

- Conifer -$4.40
- Hardwood -$1.07

Forest Renewal Trust Fund (FRTF) rates included a flat rate of $3.30 per cubic metre for conifer and $0.50 per cubic metre for hardwood volumes. These rates are variable from year to year based on changing economic environments and the amount or renewal treatments are yet to be conducted. These rates were negotiated between the OMNR and the company, and are normally reviewed on an annual basis.

The following table presents the volumes, stumpage and Trust Fund contributions for 2003-2007.

Table 2. Five Year History of Actual Harvest Volumes and MNR Revenues by Timber Dues Type.

Year	Invoiced Volume (m^3)	Crown Revenue ($)	FRTF or Special Purpose Contribution	Forestry Futures Trust Fund Contribution	Average Stumpage (per m^3)
2003	863,753	$ 3,049,218.00	$ 1,447,455.00	$ 414,152.72	$5.69
2004	786,463	$ 3,400,105.00	$ 2,344,564.00	$ 377,045.19	$7.78
2005	900,376	$ 3,205,565.00	$ 1,985,362.00	$ 430,894.09	$6.24
2006	683,823	$ 2,515,156.00	$ 604,167.00	$ 327,807.85	$5.04
2007	532,684	$ 1,500,291.00	$ 736,648.00	$ 237,746.06	$4.65

- The average Crown revenues collected from the forest companies over a five year period is $3.63 per m3
- Average stumpage costs over a five year period is $5.99 per m3

3.2 Recreation and Tourism

3.2.1 Description of Parks, Protected Area and General Land Use

The purpose of Ontario's Provincial Parks and protected areas is to permanently protect a system of provincial parks and conservation reserves that includes ecosystems that are representative of all of Ontario's natural regions, protects provincially significant elements of Ontario's natural and cultural heritage, maintains biodiversity and provides opportunities for compatible, ecologically sustainable recreation. Ontario's provincial parks and conservation reserves are dedicated to the people of Ontario and visitors for their inspiration, education, health, recreational enjoyment and other benefits with the intention that these areas shall be managed to maintain their ecological integrity and to leave them unimpaired for future generations.

There are several different classifications of parks and protected areas. Each class and individual area has different objectives and permit different activities within the defined areas. There are six classifications of provincial parks; 1)Wilderness Class Parks, 2) Nature Reserve Class Parks, 3) Cultural Heritage Class Parks, 4) Natural Environment Class Parks, 5) Waterway Class Parks, and 6) Recreational Class Parks. In addition to parks, there are conservation reserves.

3.2.2 Provincial Parks

There are five Provincial Parks located on the Wabigoon Forest and they are all non-operating parks. They are Eagle-Dogtooth; Turtle River - White Otter Lake; Winnange Lake; Butler Lake and Lola Lake Provincial Parks. Eagle-Dogtooth and Turtle River-White Otter Lake are classed as Waterway Parks; Butler Lake and Lola Lake are Nature Reserve Parks; and Winnange Lake is a Natural Environment Park. The five Parks cover a total area of 105,139 hectares and cover 41, 315 hectares of the Wabigoon Forest. None of the five Parks is wholly contained within the Wabigoon Forest.

Waterway parks are lakes or river corridors that provide canoeists with high-quality recreation and historical river travel. Nature reserve parks represent and protect the distinctive natural habitats and landforms of the province for educational and research purposes. Natural environment parks protect the landscapes and special features of the natural region in which they are located, while providing opportunities for activities such as swimming and camping.

3.2.2.1 Lola Lake Provincial Park (P2591)

Lola Lake Provincial Park is located northeast of Dryden. It crosses the Wabigoon and Dryden Forest boundaries and is 6572 ha in size. Lola Lake was regulated in 1985 as a nature reserve

class park. The park provides representation of earth and life science features for Site District 4S-3, specifically peatland on lacustrine sand plain and associated treed bog communities.

3.2.2.2 Butler Lake Provincial Park (P2556)

Butler Lake Provincial Park is a 3400 ha park located southeast of Dryden on the south shore of Wabigoon Lake. It is mainly located on the Wabigoon Forest, but shares the southern boundary of the Dryden Forest. Butler Lake was regulated as a nature reserve class park in 1985 to protect earth science features. The park provides representation of earth science features for Site District 4S-4.

3.2.2.3 Winnange Lake Provincial Park (P2559)

Winnange Lake Provincial Park is a 4745 ha park located west of Dryden and is directly adjacent to Eagle Dogtooth Provincial Park. The main portion of the park is within the Wabigoon Forest with a small portions north of the Canadian Pacific rail line that is within the Dryden Forest. Winnange Lake was regulated as a natural environment class park in 1985 to protect earth science features for Site District 4S-5 and to provide water-based recreation. The area is a well used fishing area and canoe route. It also makes up a portion of the snowmobile trail between Vermilion Bay and Kenora.

3.2.2.4 Eagle-Dogtooth Provincial Park (P2363)

The Eagle-Dogtooth Provincial Park is a 41,128 ha park located west of Vermilion Bay. It covers a series of adjoining lakes that are of significant ecological and recreational importance. The park is mainly within the Wabigoon Forest, but runs along the southern boundary of the Dryden Forest. This park provides a waterway linkage between Eagle Lake and nearby protected areas (e.g. Rushing River, Winnange). It is an important recreational waterway. The site contains regionally significant moraines, wetlands, pine forest ecosystems, eagles, waterfowl and is an important recreation and tourism area. This chain of lakes is used as a popular fishing area, canoe route and is part of the provincial snowmobile trail network.

This area contains a portion of the Experimental lakes area. The experimental lakes area is a controlled area set aside by the Federal and Provincial Governments for the purpose of conducting experiments. The experiments are conducted by the Canadian Department of Fisheries and Oceans to provide quantitative guidelines for the management of lakes, streams, their watersheds and airsheds in order to protect them from the adverse effects of human activities and to enhance their value as resources.

3.2.2.5 Turtle River – White Otter Lake Waterway Provincial Park (P2304e)

This 38,059 ha area, regulated as a waterway class Provincial Park in 1989, includes White Otter Lake and the Turtle River, as well as some associated waters. It forms a waterway extending from the mouth of the Turtle River at Little Turtle Lake to Agimak Lake, south of the town of Ignace. The area includes a 200 metre deep strip of land on each side of the Turtle River, White Otter Lake and other waters included in the park. In addition, a managed skyline outside the 200

metre recommended park boundary will be applied where appropriate. The park boundary has been, in some cases, particularly on White Otter Lake, extended beyond the 200 metres to include significant cultural and natural nodes. A portion of the Eagle-Finlayson moraine is also included within the park. Present uses include water-oriented recreation, commercial tourism and trapping. The White Otter Castle on the north end of White Otter Lake is a locally significant tourist attraction. Access to the area is primarily limited to air, boat and snow machine. An old logging road, in extremely poor condition, accesses the south end of Ann Bay on White Otter Lake. A forest access road exists to the north of the park at Dibble Lake, and a tertiary forest access road accesses Robinson Lake. In addition, the Turtle River is crossed by the Highway # 622 just north-west of Pekagoning Lake. Two native pictograph sites are found within the park and the Eltrut/Jones Lake area has significant wild rice stands. Earth science features include loess and lacustrine deposits. The name of this park changed to 'Turtle River-White Otter' on May 22, 2003.

3.2.3 Conservation Reserves

There are twelve Conservation Reserves located on the Wabigoon Forest and they are Adair Lake; Campus Lake; Dryberry Lake; Eagle Lake Islands; East Wabigoon River; Kapesakosi Lake; Lac Seul Islands; Melgund Lake; Pyatt Lake; Rainmaker Lake; Stormy Lake and West Wabigon River. Those Conservation Reserves cover a total area of 66,389 hectares and cover 6,178 hectares of the Wabigoon Forest. Generally, Conservation Reserve sites contain representative landform and vegetation types.

3.2.3.1 Eagle Lake Islands Conservation Reserve (C2340)

The Eagle Lake Conservation Reserve is cover the majority of islands within Eagle Lake, which are majority located within the Dryden Forest. The conservation reserves represent 3,395 hectares of islands within one of the areas most significant sport fishing lakes. The site contains representative landform and vegetation types, including mixed forests on weakly broken bedrock and lacustrine deposits. Many of the islands represent a significant proportion of the Dryden Forest old growth red pine and are significant to a variety of wildlife, including pelicans, eagles, heron rookeries, and osprey. The islands have high recreation potential due the high tourism and significant sport fishing demands. The Eagle Lake Islands Conservation Reserve was regulated on May 21, 2003.

3.2.3.2 West Wabigoon River Conservation Reserve (C2338)

The West Wabigoon River Conservation Reserve is 714 ha reserve located north of Vermillion Bay. It is located mainly on the Wabigoon Forest, but shares the northern boundary of the Dryden Forest. The conservation reserve was regulated in May, 2003. This area represents the largest larch swamp in the Dryden District., part of a large river riparian system.

3.2.3.3 East Wabigoon River Conservation Reserve (C2316)

The East Wabigoon River Conservation Reserve is a 1299 ha area that extends from the eastern boundary of the Wabigoon First Nations Reserve to Melgun Township along the Wabigoon and Long Lake river system. The conservations reserve was regulated in May 2003. This site contains wild rice stands, a fish sanctuary, and a marsh and swamp wetlands complex. It is part of the Stormy Lake canoe route.

3.2.3.4 Adair Lake Conservation Reserve (C2308)

The Adair Lake Conservation is a 2800 ha area east of Dryden in the northern half of the Revell township. This site contains representative landform and vegetation types, including glaciofluvial sand and gravel outwash fronting the Hartmann moraine, open bog and fen, treed bog and fen and swamp. The Adair Lake Conservation Reserve was regulated in May 2003.

3.2.3.5 Airport Road Conservation Reserve (C2321)

This conservation reserve as a 66 ha land parcel surrounded by mostly patent land just south of the Dryden Regional Airport. This site contains representative landform and vegetation types, including bogs, thicket swamp, conifer swamp, ice contact delta of Hartmann moraine. The Airport Road Conservation Reserve was regulated in May 2003.

3.2.3.6 Pyatt Lake Conservation Reserve (C2307)

The Pyatt Lake Conservation Reserve is a 405 ha reserve in the eastern portion of the Revell Township, east of Dryden. The site contains a treed low shrub bog, open graminoid fen, and other bogs, swamps and fens. Pyatt Lake Conservation Reserve was regulated in May of 2003.

3.2.3.7 Rainmaker Lake Conservation Reserve (C2341)

This 70 ha site contains representative old growth red and white pine forest on bare bedrock and silty sand substrates. Rainmaker Lake Conservation Reserve was regulated on May 21, 2003.

3.2.3.8 Kapesakosi Lake Conservation Reserve (C2346)

This 175 ha site contains a representative old growth red and white pine forest. Kapesakosi Lake Conservation Reserve was regulated on May 21, 2003.

3.2.3.9 Stormy Lake Conservation Reserve (C2313)

This 412 ha area contains upland and lowland old growth cedar. Stormy Lake is designated as a tourism lake. The Stormy Lake Conservation Reserve was regulated on May 21, 2003.

3.2.3.10 Campus Lake Conservation Reserve (C2299)

Campus Lake is situated 12 kilometres south of the community of Ignace and 33 kilometres north of the Town of Atikokan, encompassing Campus, Elsie, Mable and Sandford Lakes and associated waters. This 19452 ha site lies between Highway 17 to the north, Highway 11 to the south and Highway 622 to the west. This site contains representative landform and vegetation types, including wetland communities and mixed conifer and deciduous forest types on weakly broken beach and aeolian deposits and weakly broken ground moraine. It also encompasses some spectacular scenic and recreational areas adjacent to Turtle River Provincial Park. Campus Lake was regulated as a conservation reserve on May 21, 2003. Sanford Lake is a designated tourism lake.

3.2.3.11 Dryberry Lake Conservation Reserve (C2357)

Dryberry Lake is a located to the east of Highway 71. The 21850 ha reserve area includes the lake and it's shoreline a distance of 200 metres from the water's edge. A number of peninsulas are also included. Dryberry Lake exhibits typical rugged terrain of north-western Ontario in a remote environment. This site contains representative landform and vegetation types, including mixed conifer, sparse forest and burn on weakly and moderately broken bedrock, and vegetated bedrock. Dryberry Lake was regulated as a conservation reserve on May 21, 2003.Dryberry Lake is designated as a lake trout lake and a tourism lake.

3.2.3.12 Lac Seul Islands Conservation Reserve (C2317)

This site includes all Crown land on islands in Lac Seul, with the exception of (the locally known) Big Island and Reserve Island on the east end of the lake. The Lac Seul Islands Conservation Reserve includes approximately 985 islands. The 14723 ha reserve area contains old growth red and white pine, nesting sites for bald eagles and ospreys, sand dune complexes, caribou calving sites, scenic values and historic and archaeological sites. These many features contribute to the important tourism industry and recreational uses that are associated with this area. Lac Seul Islands was regulated as a conservation reserve on May 21, 2003.

3.2.4 Forest Reserves

There are three Forest Reserves (as described in section 2.4) occupying five sites and 216 hectares. Forest reserves are areas where protection of natural heritage and special landscapes is a priority, but some resource use can take place with appropriate conditions due to existing land use agreements such as mining claims, aggregate permit and area reserved for research purposes. These reserve were originally identified for inclusion in the Ontario's Living Legacy Land Use Strategy as part of the recommended Provincial Park or Conservation Reserves, but during the preparation of the OLL Use Strategy and through subsequent boundary refinement and inventory processes, it was determined that this area contained other commitments to other uses and thus could not be designated as Parks or Conservation Reserves. These areas will remain as Forest Reserves until the authority for those uses is retired through normal processes.

3.2.4.1 Melgund Lake Forest Reserve (F2311)

This 113 ha forest reserve consists of an aggregate permit located adjacent to the CPR railway track in the southwest portion of the Melgund Lake Conservation Reserve. Forest reserves are areas where protection of natural heritage and special landscapes is a priority, but some resource use can take place with appropriate conditions. The intention is that this forest reserve will become part of Melgund Lake Conservation Reserve if the aggregate permit is retired through normal processes. In the interim, the area will be managed consistent with the protection of natural heritage values.

3.2.4.2 Eagle Lake Islands Forest Reserve (F2340)

The Eagle Lake Islands Forest Reserve is located on the Dryden forest, but is in close proximity to the Eagle Lake shoreline which represents the Wabigoon Forest MU boundary. This forest reserve consists of one mining claim which is located on a small island to the west of Net Island

on Eagle Lake. This 8 ha block was originally identified for inclusion in the Ontario's Living Legacy Land Use Strategy as part of the recommended Eagle Lake Islands Conservation Reserve. The intention is that this forest reserve will become part of the Eagle Lake Islands Conservation Reserve if the mining tenure is retired through normal processes. In the interim, the area will be managed consistent with the protection of natural heritage values.

3.2.4.3 Eagle-Dogtooth Forest Reserve (F2363)

This 74 ha forest reserve consists of three different portions: south of Muskeg Bay, west shore of Eldorado Bay and east side of Teggau Lake. The first portion consists of mining claims and an aggregate permit. The second portion contains mining claims. The third portion includes a small lake and its watershed. It is currently used for research purposes as part of the Experimental Lakes Area (F2363/ELA). The experimental lakes area is a controlled area set aside by the Federal and Provincial Governments for the purpose of conducting experiments. The experiments are conducted by the Canadian Department of Fisheries and Oceans to provide quantitative guidelines for the management of lakes, streams, their watersheds and airsheds in order to protect them from the adverse effects of human activities and to enhance their value as resources. The current agreement expires in 2005.

The intention is that this forest reserve will become part of Eagle Dogtooth Provincial Park if the mining tenure, aggregate permit and land use authority is retired through normal processes. In the interim, the area will be managed consistent with the protection of natural heritage values.

3.2.5 General Use Areas

3.2.5.1 Clay, Perrault, Route, Melgund and Tot Lake General Use Area (G2511)

This area is located north of Highway 17 and forms part of the Wabigoon, Dryden, Whiskey Jack and Lac Seul Forest. It also includes part of the Kenora Forest Management Unit. Existing activities in the area include timber harvesting, cottaging, trapping, commercial fishing, Crown land recreation, mineral exploration and sport fishing. Access into the area is considered extensive. No specific problems have been identified in the area other than the continuing issue of incompatibility between resource extraction and tourism uses in site specific areas. This area contains a portion of the Experimental Lakes Area. The Experimental Lakes Area is a controlled area set aside by the Federal and Provincial Governments for the purpose of conducting experiments. The experiments are conducted by the Canadian Department of Fisheries and Oceans to provide quantitative guidelines for the management of lakes, streams, their watersheds and airsheds in order to protect them from the adverse effects of human activities and to enhance their value as resources. The current agreement expires in 2005. The following are designated as Tourism Lakes: Route, Lynx, Williams, Thaddeus, Rugby, Edward, Wabauskang, Cedar, Clay, Golder, Portal, Forest, Linklater, Troutfly, Stewart, Wickens, Alexandra, Perrault, Ord, Big Canyon, Sup, and Anishinabi Lake.

Resource harvesting, extraction and recreational activity will be of equal importance in this area. Resource access roads will continue to be developed consistent with the concept of multiple uses and recognizing the variety of activities going on in the area. All activities in this area will take

into consideration the known sensitive areas of two cemeteries, five blue heron rookeries, numerous bald eagle nests, a clay pebble beach, two pictographs and a spring. It is hoped that future development, with the exception of the built-up area, on the Indian Reserve will be compatible with the land use intent expressed for this area.

3.2.5.2 Silver Lake General Use Area (G2551)

This area is located to the east of the English River Road between the south shore of the English River and Eagle-Dogtooth Provincial Park, and east toward Big Canyon Lake. Primary activities in the area include forestry, quarry stone operations, tourism and recreation. This area contains a portion of the Experimental Lakes Area. The current ELA agreement expires in 2005. Silver Lake, Willard Lake and the Wonderland-Delaney-Keys chain of lakes are considered significant waterbodies in this area. The following lakes have been designated as tourism lakes: Big Canyon, Delaney, East, Favel, Hawk, Silver and Walleye Lake.

The area will be managed for resource production and recreational use. In those areas in which logging have taken place, recreation will be given priority in conjunction with silvicultural activities. There is some potential for expansion of recreational fishing opportunities. Future study will determine the amount and location of such potential. Crown land recreation is an important activity in the area and specific management plans will be developed to recognize this activity.

3.2.5.3 Dryden, Vermilion Bay and Area General Use Area (G2531)

This area reflects the concentration of patent land within Vermillion Bay and Dryden. The area ranges from the east side of Blue Lake Park eastward to Highway 601 in Dryden and from the South end of Rugby Lake southward to Bob Lake. The area is well accessed by provincial highways, township roads and resource access roads. The Eagle Lake Indian Reserve and part of the Wabigoon Indian Reserve are located in this area. This area forms part of the Wabigoon and Dryden Forests. Existing activities in this area include urban and rural residential, farming, cottaging, commercial recreation and Crown land recreation. The majority of the area is comprised of patented land. Issues to be addressed in the management of the area include: additional Crown land for agricultural purposes, continuing rural residential development and future cottaging opportunities on Crown land along a portion of the shoreline of Eagle Lake contained within this area. The following are designated as Tourism Lakes: Pritchard and Thunder Lakes.

The primary use of this area will continue to be urban and rural residential development, farming, cottaging, commercial and Crown land recreation. Expansion of the agricultural land base will be encouraged primarily in this area, firstly on existing farms, secondly on patented land and thirdly on Crown land. Disposition of Crown land for agricultural purposes in this area will primarily be of an infilling nature. Eagle Lake may have potential for additional cottaging. Any disposition of Crown land on Eagle Lake for cottaging purposes will be preceded by a lake management plan which would recognize the prime importance of Eagle Lake in terms of the sport fisheries and the tourism development presently on the lake. There will be no Crown land disposition for tourism development which is directly dependent on an increased harvest of fish

and wildlife resources. Road access will be managed to facilitate the overall land use intent. Guidelines for resource extraction along Eagle Lake and Wabigoon Lakes will be particularly cognizant of the existing rural residential and recreational activity. All activities in this area will take into consideration the known sensitive areas of three cemeteries; the three seed orchards; the black spruce plantation; the two eagle's nests; the blue heron rookery and the Indian pictograph. All Crown land development and uses will attempt to conform to official plans and zoning by-laws. Other ongoing activities (e.g. forestry, mineral exploration, aggregate extraction, hunting, trapping, commercial fishing, etc.) will continue. MNR will also be looking to private land to encourage forest management practices with the view to realizing a portion of the District's fibre target in this area. It is hoped that future development on the Indian reserves will be compatible with the land use intent expressed for this area. Management of this area is also governed by the general policies contained in the Dryden District Land Use Guidelines (1983).

3.2.5.4 Bending Lake General Use Area (G2544)

This area is located in the central portion of Dryden District. Contained within its boundaries are the Townships of Revell, Hyndman and parts of Hodgson, Bradshaw and Osaquan. The area is within Wabigoon Forest and the Dryden Forest. In addition, there are two tourist lodges, six outpost camps, one private recreation camp, three remote cottages and a number of private cottages within the area. Canada Land Inventory surveys indicate that this area contains some Class 2-4 agricultural land. Presently none of this land is under agricultural production. A band of moderate to high mineral potential stretches through the area. There are two heronries and three geological sensitive areas within the Bending Lake Area. Bending Lake Highway 622 traverses south from Highway 17 along the western edge of Fisheries Management Zone #21 (Ignace District Fisheries Management Plan) and the G2544 Bending Lake General Use Area. At its closest point Highway 622 is within 600 metres of Bending Lake. The following are designated as tourism lakes: Bending, Osprey, Stormy, Kawashegamuk, Sandbar.

The purpose of this area will be to allow timber harvesting while maintaining commercial recreation facilities. Mining developments will also be encouraged. In order to protect the agricultural area, no disposition for permanent developments on Class 1 to 4 lands will occur. No future expansion of cottaging or tourism facilities will be allowed on Crown land. Bending Lake will continue to be managed with the intent of limiting road access. This will be accomplished through use limitations such as road restrictions or by artificial means as directed by the Ignace Fisheries Management Plan. This direction is also consistent with the definition of Semi-Remote Tourism in the Resource-Based Tourism Policy, Information Bulletin #1. Sensitive areas noted above will be recognized and protected in resource management plans. Management of this area is also governed by the general policies contained in the Ignace District Land Use Guidelines (1983).

3.2.5.5 Gullwing Lake General Use Area (G2538)

Located northeast of the City of Dryden this area includes Gullwing Lake, which is a trout lake, and Bluett Lake. Activities occurring in this area include timber harvesting, tourist lodge development, cottaging, commercial fishing, sport fishing and hunting. The area is known for its very high moose population, one of the highest in the District and is a popular hunting area for

Dryden residents. This area forms part of the Wabigoon Forest. Issues which will have to be addressed in the future management of this area include: timber harvesting, maintaining a high moose population and access to the interior of the area.

The primary use of this area will be for resource extraction (timber harvesting and mineral exploration/extraction) however, it will occur in such a manner that Gullwing Lake will not be jeopardized and the moose population will remain at its current high level. The placement and management of access roads during timber harvesting and mineral exploration will be the key to ensuring that these fish and wildlife values are maintained. Restrictions on hunting in the area may also be necessary immediately following an area being cut in order to ensure that the moose population is not unduly impacted. Management of this area is also governed by the general policies contained in the Dryden District Land Use Guidelines (1983).

3.2.5.6 Teggau Lake General Use Area (G2534)

This is a large area extending from the west side of Eagle Lake westward to Dryberry Lake. The area is within the Whiskey Jack and the Wabigoon Forest. Existing activities in the area include timber harvesting, commercial fishing, cottaging, sport fishing and tourism. The area is characterized by a large number of lake trout lakes and a rough rock terrain. A large portion of this area was burnt in a 1974 fire. A number of lakes in this area are part of the Experimental Lakes area. The current agreement expires in 2005.

The primary activity in the area will be public recreation. Resource harvesting activities will be permitted however they will be considered a secondary use. The area will be managed to provide for a high quality, low density recreation experience. Timber harvesting will be permitted in the area however, roads will be carefully placed and managed to ensure that they consider the recreation values.

3.2.5.7 Eagle, Wabigoon, Stormy, Kawashegamuck Lake General Use Area (G2533)

This area extends from the southern shores of Eagle and Wabigoon Lake to the southern boundary of the Wabigoon forest and from Melgund Township to Eagle-Dogtooth Lake Provincial Park (around Fisher Lake). There are two major waterbodies, Eagle Lake and Wabigoon Lake, located in this area. Existing resource activities in the area include commercial recreation, Crown land recreation, timber harvesting, sport fishing and commercial fishing. The area includes portions of the Wabigoon Forest, the Dryden Forest and the Crossroute Forest. The Wabigoon Lake Indian Reserve is located in this area. The following are designated as Tourism Lakes: Eagle, Stormy and Long.

Resource harvesting, extraction and recreational activity will be of equal importance in this area, recognizing that the area is presently used in a multiple use manner. Additional Crown land cottaging may be provided on a number of lakes in this area including Eagle Lake. Development of cottages on Eagle Lake will be preceded by a lake management plan which will recognize the prime importance of Eagle Lake in terms of the sport fisheries and the Tourism Development presently on the lake. Resource access roads will continue to be developed consistent with the concept of multiple uses and recognizing the variety of activities going on in the area. Roads in

the area will generally be open to all users. All activities in this area will take into consideration the known sensitive areas which include the following: three eagle nests, a soapstone quarry, a native burial ground, a pictograph, two tree plantations, two pickerel spawning areas, a hybrid poplar trial area, a heron rookery, a freshwater spring, an Indian camping ground, a black spruce production area and a climax forest. Management of this area is also governed by the general policies contained in the Dryden District Land Use Guidelines (1983).

3.2.5.8 Atikwa Lake General Use Area (G2550)

This area is located east of Highway 71 and includes Atikwa, Caviar and Kakagi Lakes. The area forms a major component of the Kenora Forest and is a significant recreational tourist area. Only a small portion of the East Arm is included in the Wabigoon Forest. There are presently 15 lodges and 3 outposts located in the zone. Road access into this area is restricted to resource management activities via three roads: Maybrun, Cameron, Tri-lake. The Crow Lake Indian Reserve No. 35-D is located in the area. Mineral potential in the vicinity of Atikwa Lake is considered to be relatively high and in the past, the Maybrun Mine which produced nickel and molybdenum was located in the area. The area forms part of Township of Sioux Narrows-Nestor Falls. The following are designated as tourism lakes: Atikwa, Cameron, Caviar, Denmark, Populus and Rowan.

This area will be managed for resource extraction and commercial tourism in a manner which recognizes the importance of sport fishing and the lake trout environment. Crown land recreation is also important. The area will generally be one of low density development with intent to preserve and protect the present remote character. In recognition of the particular significance of Atikwa, Kakagi and Rowan Lakes as recreational resources, any proposed resource activities directed towards these areas will be required to modify and adjust plans to ensure any perceived impacts are minimized. In addition, the unique and remote habitat represented by many small lakes in this area will be protected.

3.2.5.9 Upper Manitou, Boyer Lake General Use Area (G2532)

Located on the southeast edge of the Dryden District, this area is characterized by a large number of lake trout lakes which for the most part are only accessible by air or snow-machine. Timber harvesting, mineral exploration, commercial tourism, commercial fishing and low intensity public recreation are the main uses occurring in this area. The area is a part of the Wabigoon Forest, Crossroute Forest and the Dryden Forest. Access in the area is limited. The Manitou Highway (Highway 502) passes through the area. The major problem to be addressed in the future management of this area is increased road access to lake trout lakes. The following are designated as Tourism Lakes: Upper Manitou, Sasakwei, Boyer, Walmsley, Washeibemaga.

The primary purpose of this area will be to maintain the existing lake trout fishery in areas of timber harvesting and mineral exploration activity. The location and management of roads will be one of the main tools used to ensure that fishing pressure on lake trout lakes does not exceed capability. Highway commercial development will not be permitted within 1.6 kilometres of the Manitou Highway (Highway 502). All activities in this area will take into consideration the known sensitive areas, which include a cemetery, two eagle nests and a heron rookery.

Management of this area is also governed by the general policies contained in the Dryden District Land Use Guidelines (1983).

3.2.5.10 Agimak Lake General Use Area (G2545)

Located in the southeast portion of Dryden District, this area includes most of the Township of Ignace, and parts of Osaquan, Ilsley and Hodgson townships. Further to the south, this area borders the Turtle River-White Otter Lake Provincial Park. Many trout lakes are scattered throughout. Also, there are five pictographs and/or historical sites here. The area is important for recreational purposes. The focal point is Agimak Lake, located almost entirely within Ignace Township. Agimak Lake is noted for private cottaging and tourism developments and other mixed uses. There are a total of three tourist lodges, four remote cottages, and five outpost camps located in this area. The following are designated as tourism lakes: Agimak, NaMaygoos, Kinmoapiku, Raleigh, Spruce, and Unnamed Lake WE67-10.

The focus of this area will be to maintain the lake trout communities for continued sports fishing opportunities. Outside of the lake trout areas, timber harvesting and private recreation will be allowed to continue. No expansion of tourism will be allowed on Crown land. Cottaging will be considered on Agimak Lake. The nine sensitive areas noted above will be recognized and protected in resource management plans. Management of this area is also governed by the general policies contained in the Ignace District Land Use Guidelines (1983).

3.2.5.11 Kathleen /Phillis Lake General Use Area (G2547)

This area extends along the south-eastern border of the Dryden District. Included are parts of Grummett, Cathcart, McNevin, Corman and Chartrand Townships. The White Otter designated canoe route passes through this area along the Scotch River. This area is also noted for the cottaging opportunities it provides. Crown subdivisions exist on Lower Scotch, Savoy and Encamp Lakes; remote cottages on Kathleen, Phyllis, and Gulliver Lakes; and two private recreation camps on Nora Lake. Nora and Savoy Lakes are designated as tourism lakes.

The primary activities in this area will be existing cottaging and timber harvesting. No additional cottaging will be considered. Existing tourism and cottaging in the area will be permitted to continue. Management of this area is also governed by the general policies contained in the Ignace District Land Use Guidelines (1983).

3.2.5.12 Mameigwess Lake General Use Area (G2546)

This area, north of the Township of Ignace, extends to the English River the Sandbar Lake designated canoe route. The area has a large number of sport fishing lakes and includes the Sandbar. Resident and non-resident recreation has focused on this area since about 1960. Five tourist lodges, five outpost camps, four cottage subdivisions, one remote cottage and a number of individual cottages are found in the area. The area also has a high number of historical sites; eight pictographs and three historical quarries. The following are designated as tourism lakes: Mameigwess, Indian, Paguchi, Godden, Basket, Abamategwia, Notman.

The primary purpose of this area will be the maintenance of existing public, private and commercial recreation facilities in harmony with existing and proposed timber harvesting operations. Expansion of commercial tourism will be permitted in this area. New cottaging sub-divisions may be considered on any lakes as identified and reviewed. District's commercial food fishing licences will be continued on Basket, Mameigwess and Sowden Lakes. Sensitive areas will be recognized and protected in resource management plans. Management of this area is also governed by the general policies contained in the Ignace District Land Use Guidelines (1983).

3.2.5.13 Minnitaki Lake South General Use Area (G2536)

This area includes a portion of the English River Forest and stretches from Minnitaki Lake in the north to Kukukus and Press Lakes to the south and west to the west shore of Big Sandy Lake. Kabikewbik, Keikewabik, and Big Sandy Lakes have been designated as Tourism Lakes.

This is a multiple use area that is largely governed by existing provincial policy. This area was not the subject of an approved District Land Use Guideline (District Land Use Guidelines). In the absence of a District Land Use Guidelines, land use direction has been provided over time through the interpretation of provincial policy. Although most land uses are permitted within this area, all new activities will be subject to a review and evaluation. The results of such a review may result in the activity being approved, modified or denied, depending on the extent of resource or user impacts.

3.2.5.14 Gullwing Lake General Use Area (G2538)

Located northeast of the City of Dryden this area includes Gullwing Lake, which is a trout lake, and Bluett Lake. Activities occurring in this area include timber harvesting, tourist lodge development, cottaging, commercial fishing, sport fishing and hunting. The area is known for its very high moose population, one of the highest in the District and is a popular hunting area for Dryden residents. This area forms part of the Wabigoon Forest. Issues which will have to be addressed in the future management of this area include: timber harvesting, maintaining a high moose population and access to the interior of the area.

The primary use of this area will be for resource extraction (timber harvesting and mineral exploration/extraction) however, it will occur in such a manner that Gullwing Lake will not be jeopardized and the moose population will remain at its current high level. The placement and management of access roads during timber harvesting and mineral exploration will be the key to ensuring that these fish and wildlife values are maintained. Restrictions on hunting in the area may also be necessary immediately following an area being cut in order to ensure that the moose population is not unduly impacted. Management of this area is also governed by the general policies contained in the Dryden District Land Use Guidelines (1983).

3.2.5.15 Lac Seul General Use Area (G2518)

The Lac Seul area encompasses Lac Seul and interconnected waterbodies (Sunlight, Broad, Adamhay, March, Archer, Bindo, Lost, Vaughan, Scaler and Bray Lakes). It includes the bed of these lakes and their backshores a minimum distance of 650 metres from the waters edge. The

islands of Lac Seul are within the Lac Seul Islands Conservation Reserve. Present uses include forestry, cottaging, tourism, Crown land recreation, fishing, hunting, and fur harvesting. The main communities bounding the lake are Ear Falls, Kejick Bay, Whitefish Bay, Hudson and Sioux Lookout. The area includes portions of Red Lake, Dryden and Sioux Lookout Districts, with Sioux Lookout District taking the administrative lead for the management of aquatic and fisheries resources. Tourism is the main industry within this area.

Sioux Lookout and Red Lake Districts did not have approved District Land Use Guidelines in 1983. In the absence of a District Land Use Guidelines, land use direction has been provided over time through the interpretation of provincial policy and direction from the Lac Seul Management Plan as modified and reviewed with input from the Lac Seul Advisory Committee. Although most land use activities are permitted within this area, all development and access activities will be subject to a review and evaluation. The results of such a review may result in the activity being approved, modified or denied, depending on the extent of resource or user impacts. The area contains a significant resource based tourism industry, ranging from road accessible main base lodges to remote outpost camps. Development on any of the lakes must be consistent with the Lac Seul Plan. The Plan divides Lac Seul into 7 zones based on access management, development and fisheries pressure to ensure a healthy sport fish population is maintained.

3.2.5.16 Lac Seul General Use Area (G2530)

This area consists of a 650 metre set back from the shoreline of Lac Seul, as dictated by the Lac Seul Management Plan. Existing activities include commercial lodges, cottaging and Crown land recreation. This area forms part of the Wabigoon Forest and the Whiskey Jack Forest.

Resource operations, recreation and tourism activities will be of equal importance in this area. No additional opportunities for cottaging or commercial tourism development will be made available on Crown land. Access to Lac Seul will be permitted for resource harvesting; however, it will be located and managed so that direct road access for recreation purposes is not created. This will ensure that this stretch of the shoreline will remain relatively undeveloped. Management of this area is also governed by the general policies contained in the Dryden District Land Use Guidelines (1983).

3.2.5.17 Experimental Lake Area (F2363/ELA, P2363/ALE, G2511/ELA and G2534/ELA)

This area consists of 29 ha of the Eagle-Dogtooth Forest (F2353), 5487 ha of Eagle-Dogtooth Waterway Provincial Park (P2363), 7181 ha of Silver Lake General Use Area (G2551) and 18,773 ha of the Teggau Lake General Use Area (G2534). The Experimental Lakes Area is a controlled area established by the federal and Ontario governments for the purposes of conducting long term aquatic research. The experiments in the Experimental Lakes Area are conducted by the Canadian Department of Fisheries and Oceans to provide quantitative guidelines for the management of lakes, streams, their watersheds and airsheds in order to protect them from the adverse effects of human activities and to enhance their value as resources. The Experimental Lakes Area covers portions of the following land use designations:- Teggau Lake

Area- Clay, Perrault, Route, Melgund and Tot Lake Area- Silver Lake Area- Eagle Dogtooth Provincial Park- Eagle Dogtooth Forest Reserve- Gibi Lake Area.

The Experimental Lakes Area research activities are governed by a federal-provincial agreement that is renewed every 5 years. The current agreement expires in 2005. A number of lakes in the Experimental Lakes Area may be subject to different research programs in any given year. Due to the nature of some of the experiments it is often necessary to close areas to public access and to restrict lakes from recreational activities. On lakes and watersheds where there are no conflicts with research activities, a wide range of resource-based activities is possible.

Table 3. Permitted Land Uses in the Parks and Protected Areas of the Wabigoon Forest

Provincial Park	**Class**	***Management***
Butler Lake	Nature Reserve	*No commercial forest resource harvesting or aggregate extraction; no road development.*
Eagle Dogtooth	Waterway	*No commercial forest resource harvesting or aggregate extraction. Existing roads are available for access where alternative access does not exist or road relocation is not feasible. Continued use includes maintenance. Where new roads are necessary, the number of crossings will be minimal and managed to reduce impact on recreational and aesthetic values.*
Lola Lake	Nature Reserve	*No commercial forest resource harvesting or aggregate extraction; no road development.*
Turtle River White Otter Lake	Waterway	*No commercial forest resource harvesting or aggregate extraction. The use of existing roads and the development of new roads will be determined through planning. Where new roads are necessary, the number of crossings will be minimal and managed to reduce impact on recreational and aesthetic values.*
Winnange Lake	Natural Environment	*No commercial forest resource harvesting or aggregate extraction; no road development.*
Conservation Reserve	**Class**	***Implication on Forest Management***
Adair Lake	Landform and unique vegetation	*No commercial forest resource harvesting or aggregate extraction; no road development*
Campus Lake	Landform and unique vegetation	*No commercial forest resource harvesting or aggregate extraction; Use of existing roads permitted; includes maintenance and upgrades; No new road development allowed*
Dryberry Lake	Landform and unique vegetation	*No commercial forest resource harvesting or aggregate extraction. Use of existing roads permitted, including maintenance and upgrades. No new road development allowed*
Eagle Lake Islands	Landform and unique vegetation	*No commercial forest resource harvesting or aggregate extraction; no road development*
East Wabigoon River	Landform and unique vegetation	*No commercial forest resource harvesting or aggregate extraction. Use of existing roads permitted, including maintenance and upgrades. No new road development allowed*
Kapesakosi Lake	Landform and unique vegetation	*No commercial forest resource harvesting or aggregate extraction; no road development*
Lac Seul Islands	Landform and unique vegetation	*No commercial forest resource harvesting or aggregate extraction. Use of existing roads permitted, including maintenance and upgrades. No new road development allowed*
Melgund Lake	Landform and unique vegetation	*No commercial forest resource harvesting or aggregate extraction. Use of existing roads permitted, including maintenance and upgrades. No new road development allowed*
Pyatt lake	Landform and unique vegetation	*No commercial forest resource harvesting or aggregate extraction; no road development*
Rainmaker Lake	Landform and unique vegetation	*No commercial forest resource harvesting or aggregate extraction; no road development*
Stormy Lake	Landform and unique vegetation	*No commercial forest resource harvesting or aggregate extraction; no road development*
West Wabigoon River	Landform and unique vegetation	*No commercial forest resource harvesting or aggregate extraction; existing access roads can be used; no new road development*

Forest Reserves	Activity	*Implication on Forest Management*
Eagle Dogtooth F2363	Mining claim, aggregate and ELA	No commercial forest resource harvesting or new aggregate extraction; existing access roads can be used; no new road development
Eagle Lake Islands F2340	One mining claim	No commercial forest resource harvesting or new aggregate extraction; existing access roads can be used; no new road development
Melgund Lake F2311	Aggregate Pit	No commercial forest resource harvesting or new aggregate extraction; existing access roads can be used; no new road development

3.3 Resource-based Tourism

The Wabigoon Forest hosts a large number tourism establishment providing opportunities for hunting, fishing, camping, canoeing, eco-tourism and more. These opportunities are supported by a variety of lodge, outpost, camps and resort. There are approximately 19 Resource Base Tourism operators on the Wabigoon Forest with another 34 establishments that use or derive benefit from the Forest. There are additional tourism outfitters, not included here, that provide hunting, fishing and eco-tourism opportunities in the area. This industry contributes millions of dollars a year to the local economy.

On July 25th, 2005 the Wabigoon Area (MNR District) sent out a socio-economic questionnaire to all lodges in order to gather required information to help the team plan, make decisions and meet socio-economics requirements for the 2008-2028 FMP.

Out of 55 tourist operators' contacted to provide information, only 16 have responded. Based on their responses, the primary activities provided by these tourist outfitters are hunting and angling (100%). Canoeing and nature walks/wildlife walks are secondary (50%), while a few offer opportunities for camping, hiking, and snowmobiling (33%). Eighty percent (80%) of these respondents operate in the spring, summer and fall seasons, whereas only 20% offer year round services.

Tourist operations provide full, part time and seasonal employment opportunities. Based on the surveys, it appears that only five (5) establishments did not provide employment beyond the owners themselves. Four (4) respondents identified they had part time help (1 to 8 employees). Seven (7) of the respondents provide seasonal employment opportunities, ranging from 2 to 16 persons.

As per the survey results, the origin of the clients ranges from locals or others of Canadian citizenship (10%), to citizens of United States (90%). The number of available beds ranges from 4 to 100 but, on average, the facilities are only used up to 57% capacity.

Only half of the tourist outfitters who responded have made enhancements in the last five years to the quality or capacity of their facilities. These improvements included expanding camp grounds, updating equipment and services, building new or renovating existing structures, and landscaping. Only three identified that they foresee an increase in their business if there are

opportunities such as purchasing more outposts, increases to BMA limits, improvements made to snow mobile trails, and if there is the return of the spring bear hunt.

Table 4 summarizing tourist outfitter survey results and MNR values information follows.

MNDM (Ministry of Northern Development and Mines) and NOTO (Northern Ontario Tourism Outfitters) were solicited to see if they had any information on file for lodges but this information was not available at this time.

3.3.1 Enhancements to Quality or Capacity of Tourism Lodges

Tourist operators make enhancements on a semi regular basis to their main base lodges as well as all outpost camps associated with the enterprise. Capacity numbers for tourism lodges could be increased by these enhancements but this information is unavailable at the present time.

Table 4 Summary of MNR Resource Based Tourism Information

ESTABLISH. ID	ESTABLISHMENT NAME	Capacity	Lodge Type	Opportunites	Number of outpost	Occupancy Level	Clientel Origins (local/Ca/US)	Season of Operations	Other	Revenue Generated	Employment	Access	Source
10016	BERGLUND'S OUTPOSTS	22	outpost	H,A,E,S,AB,CK	3	60%	10%-5%-85%	Sp,Su,Fa,Wi			1FT	Road,Boat, ATV	Survey
93014	BERGMANN'S CAMP MIDGARD		main base					Sp,Su,Fa				Road	NRVIS
87106	BROWN'S CLEARWATER WEST LODGE & OUTPOSTS	10	main base	A,AB,C,CK,E,S,W	1	25%	25%-20%-55%	Sp,Su,Fa, Wi	71 Campsites		4FT, 8PT, 12 SE	Road	Survey
87186	CAMP OF THE WOODS		main base									Road	NRVIS
84380	CANOE CANADA OUTFITTERS	14	outpost	H, A, E, CK	2	85%	0%-0%- 100%	Sp,Su,Fa			7 FT, 4 PT	Fly In	Survey
93060	COBBLESTONE LODGE	38	main base	H, A, C, E	1	90%	0%-20%- 80%	Sp,Su,Fa			2 FT	Road	Survey
93525	DON WRIGHT'S CAMP		main base									Road	NRVIS
93211	EAGLE LAKE SPORTSMEN'S LODGE		main base									Road	NRVIS
93148	FIN & FEATHER RESORT		main base		2			Sp,Su,FA				Road/ remote outpost	NRVIS
93085	GREEN ISLAND LODGE LTD		main base					Sp,Su,FA				Road\ remote	NRVIS
84445	GUMMESON'S CAMP		main base					Su				Road	NRVIS
90123	HANSON'S HIDEAWAY LODGE	-	main base	H,A,E,S,AB,CK	-	65%	0%-10%-90%	-			-	Road	Survey
93083	HERSCHMAN'S CANADIAN LODGE	10	main base	H,A	1	10%	0%-0%-90%	Sp,Su,Fa			2 PT	Boat, Fly In	Survey
93069	HUBER'S LONE PINE LODGE	92	main base	H,A,C,E,CK,W	0		0%-10%-90%	Sp, Su, Fa			1 FT, 8 SE	Road	Survey
93041	IGNACE OUTPOSTS LTD		outpost		13			Sp, Su, Fa				Remote/Semi Remote	NRVIS
93212	KIMBERLEY'S EAGLE WEST RESORT		main base					Sp, Su, Fa				Road	NRVIS
95082	KNOBBY'S FLY-IN CAMPS LIMITED		main base		6			Sp, Su, Fa				Fly In	NRVIS
95081	MANITOU LODGE		main base					Sp, Su, Fa				Boat, Fly In	NRVIS
93072	MERKEL'S CAMP		main base		1			Sp, Su, Fa				Road	NRVIS
93076	PINE GROVE CAMPING AND MOTEL		outpost									Road	NRVIS
93173	PINE GROVE MOTEL/NORTHWINDS CANADIAN OUTFITTERS		outpost									Remote	NRVIS
93061	RALEIGH LAKE LODGE		main base					Sp, Su, Fa				Road	NRVIS
93130	ROUTE LAKE LODGE	36	main base	H,A,E	-	50%	0%-2%-98%	Sp,Su,Fa			1FT, 1PT	Boat	Survey
93063	SANDY POINT CAMP		main base									Road	NRVIS
93138	SILVER WATER WHEEL LODGE	40	main base	H,A	1	98%	0%-1%- 99%	Sp,Su,Fa			2 FT, 16 SE	Road	Survey
93213	STANLEY'S RESORT		main base									Road	NRVIS
93067	STORMY LAKE CAMP	4	main base	H, A, S	1	10%	5%-0%- 95%	Su			2 FT	Boat, Fly In	Survey
93132	THADDEUS LAKE LODGE		main base									Road	NRVIS
93111	TURTLE RIVER ADVENTURE BASE		main base					Sp,Su,Fa				Road	NRVIS
93112	TURTLE RIVER WILDERNESS LODGE		main base					Su				Road	NRVIS
93183	VERMILION BAY LODGE		main base									Road	NRVIS
95069	WILLIAMS LAKE LODGE		main base		1			Sp,Su				Road	NRVIS
90175	ATIKWA LAKE LODGE		Main base									Remote	NRVIS
93070	BEAR PAW LANDING	30	Main base	H, A, CK, E	2	35%	0-0-100	Sp, Su, Fa			2 PT	Road	Survey
93064	BROWN BAY CAMP LTD		Main base									Road	NRVIS
93162	CEDAR POINT LODGE LTD		Main base									Road	NRVIS
93172	CENTURY LODGE		Main base		1							Remote	NRVIS
93350	CLEARWATER COVE RESORT		Main base									Road	NRVIS
93161	DEER TRAIL LODGE		Main base									Road	NRVIS
93151	EAGLE LAKE ISLAND LODGE												NRVIS
93152	EVERGREEN LODGE LTD		Main base					Sp, Su, Fa, Wi				r	NRVIS
93122	INDIAN POINT CAMP		Main base									Road	NRVIS
93071	MUSKIE BAY LODGE		Main base									Road	NRVIS
87420	NORTHWEST FLYING INC.		Outpost									Remote	NRVIS
93182	PINE ACRES CAMP & OUTFITTERS LTD		Campground									Road	NRVIS
93170	PINE BEACH LODGE INC	60	Main base	H, A	0	75%	0-1-99	Su			2 SE	Road	Survey
93065	PINE SUNSET CAMP												
93100	POLAR STAR LODGE	100	Main base	H,A	0	33%	0-0-100	Su			4 SE	Road	Survey
93244	RAINBOW POINT LODGE	96	Main base	H, A, C, CK, E,		75%	0-5-95	Sp, Su, Fa			10 SE	Road	Survey
93167	SOUTH SHORE LODGE	50	Main base	H,A	0	-	0-0-100	-			7 SE	Water, Air	Survey
95010	SPRING WATER PARK	0	Restaurant Outfitter	H,C, CK, S	0		70-0-30	Sp, Su, Fa, Wi			2 FT	Road	Survey
90467	STEWART LAKE LODE		Main base									Road	NRVIS
93164	SUNSET ISLAND CAMP												
93150	TEMPLE BAY LODGE		Main base									Road	NRVIS

3.3.2 Relevant Tourism Expenditure Data, Willingness to Pay Information

3.3.2.1 Profile of Tourism in Sunset Country

In the fall of 2003, *The Economic Impact of Tourism in Sunset Country, Ontario*[4] was released by Pannell Kerr Forster Consulting in association with the Canadian Tourism Research Institute. The purpose of the report was to determine the true value of tourism in Sunset Country. The Sunset Country area is "west of and including Atikokan, with Quetico Park in the east, Lake of the Woods on the west, the United States to the south, and Hudson Bay to the North". For the purposes of the study, Sunset Country was further divided into sub-regions: Kenora, Patricia, Rainy River and Red Lake. The Dryden Forest falls within the Patricia and Rainy River sub-regions. The Patricia sub-region includes Dinorwic, Dryden, Eagle River, Hudson, Lac Seul, Oxdrift, Pickle Lake, Savant Lake, Sioux Lookout, Vermilion Bay and Waldhof. The Rainy River sub-region includes Ignace, Upsala, Fort Frances, Atikokan, Sleeman, Rainy River, Morson, La Vallee, Mine Centre, Emo, Devlin and Barwick.

Financial operating data from 2001 was obtained from an Accommodation Operator Survey (77 out of 1,400 surveys were completed). From the survey, visitor tourism spending and capital expenditure invested by accommodation providers of Sunset Country were determined.

Sunset Country's tourism industry sustains approximately 3,785 employed persons, of whom 574 are full-time year-round employees, 2,462 are full-time seasonal employees and 750 are part-time employees.

Canadian citizens/landed immigrants own approximately 82% of Sunset Country's accommodation operations. Of the remaining 18%, 17% are American owned and 1% is First Nations owned. The majority of Sunset Country's guests are American (88%). Overall, in 2001 the occupied fixed roof unit nights were approximately 819,000 with 560,000 guest visits. An operating length of 231 days had an overall occupancy of 55%.

In 2001, 73% of the accommodation facilities spent money on capital investments. A total of $44 million was spent with an average of $11,017 spent per unit.

The average revenue of a single fixed roof accommodation during the 2001 fiscal year was approximately $40,000. Of that $40,000, 53% is obtained from room or accommodation rentals, 15% from guest services, such as guiding fees or air service, 11% from food and beverages, 11% from other revenue, and 10% from retail, such as fishing and hunting licences. Sunset Country's net income of 2001 was $35.5 million.

Within the Patricia sub-region, a total of 22 properties responded to the survey. There are 320 units associated with the 22 properties. The accommodation facilities of the Patricia

[4] PKF Consulting in association with the Canadian Tourism Research Institute, 2003. The Economic Impact of Tourism in Sunset Country, Ontario. Prepared for the Northwestern Ontario Tourism Association.

sub-region offer a wide range of recreational activities. From the 2001 survey the facilities offer the following activities: angling (86%), boating - motor, sail, kayak, canoe (50%), hunting (64%), fishing/hunting outfitter (55%), guiding service – personal (55%), eco/adventure/wildlife tour (14%), fly in outfitter/aircraft service (9%), snowmobiling (14%) and tour operators (5%). Eighty-six percent of accommodation facilities in the Patricia sub-region are accessed by road, 5% by boat, and 9% are fly-in facilities.

Within the Rainy River sub-region, a total of 19 properties responded to the survey. Accommodation facilities in the Rainy River sub-region offer a wide range of recreational activities. From the 2001 survey the facilities offer the following activities: angling (95%), boating - motor, sail, kayak, canoe (74%), hunting (69%), fishing/hunting outfitter (53%), guiding service – personal (69%), eco/adventure/wildlife tour (11%), fly in outfitter/aircraft service (21%), snowmobiling (21%), canoe outfitting (21%), ATV trails (16%), cross-country skiing/snowshoeing (5%), golfing (5%), tour operators (5%) and scuba diving (11%). Fifty-five percent of accommodation providers in the Rainy River sub-region are road-accessible, 35% are reached by boat, and 10% are fly-in facilities.

3.3.2.2 Recreational Facilities Available on the Management Unit

There are currently:

- 29 MNR public access points
- 244 private boat caches
- 37 resource harvest boat caches
- 141 commercial boat caches
- 92 designated camping sites
- 1 picnic site

on the Wabigoon Forest available for recreation uses.

There is also approximately 300 km of groomed OFSC snowmobile trails easily accessible on the Wabigoon Forest or adjacent to the forest boundary. Also, there are 1000 km of trail systems on the Wabigoon Forest that could be used for hiking, mountain biking and canoeing including the portages.

3.4 Crown Land Recreation Activities

There are numerous recreation activities present on the Wabigoon Forest. People utilize Crown land for fishing, hunting and Crown land camping. There are sites specifically set aside for lake access and camping.

The vast majority of the Wabigoon Forest is designated as General Use Areas.

Based on the land use intent for a designated land use area, a variety of different land uses may be specified for a given area. Management direction is provided for the following activities within each land use area:

Commercial Activities:

Aggregate extraction;
Bait Fishing;
Commercial Fishing;
Hydro development;
Fur harvesting;
Timber harvesting; and
Tourism;
Mineral exploration and development;
Peat extraction;
Wild rice harvesting;
Crown Land Disposition;
Agriculture;
Cottaging;
Rural residential development;
Urban Development;
Road development and maintenance;
Recreational Activities and Facilities;
Crown land recreation;
Hunting;
Public road use; and
Sport fishing

3.4.1 Relevant Commercial Tourism Activities on the Unit that are not associated with Lodges

There currently is one relevant commercial tourism activity that is not associated with lodges. There is a dog sledding adventures business on the Wabigoon Forest.

3.5 Hunting and Fishing Data relevant to the Management Unit

The numbers generated below are based on a MNR 2001 Provincial Mail Survey covering the areas of Superior and Pineland Martel Forests north of Sault Ste. Marie, Ontario. At this time these are the closer figures to determine hunting expenditures.

Hunting/Wildlife Management Unit Analysis
(% of respective WMU in Wabigoon MU)

- WMU 5 18.9%
- WMU 7B 1.7%

- WMU 8 47.9%
- WMU 9A 31.7%
- WMU 12A 19.7%
- WMU 15A 2.4%

Moose Hunting Profile

WMU	% in Wabigoon FMU	# Adult Moose Tag Applications	# Adult Moose Applications X % WMU in FMU
5	18.9	2475	468
7B	1.7	594	10
8	47.9	1652	791
9A	31.7	1008	320
12A	19.7	820	162
15A	2.4	2144	51
Total			1802

Number of moose hunters (who applied for AVT's [Adult Validation Tag]) in the Wabigoon Forest (2004) = 1802
Average expenditure per moose hunter on the Wabigoon Forest = $783.00
(Information received from MNR 2001 Provincial Mail Survey)
Total annual expenditures from moose hunting on the Wabigoon Forest
$783.00 x 1802 = $1,411,000.00

Deer Hunting Profile

WMU	% in Wabigoon FMU	# Antlerless Deer Tag Applications	# Antlerless Deer Applications X % WMU in FMU
5	18.9	220	42
7B	1.7	1253	21
8	47.9	629	301
9A	31.7	218	69
12A	19.7	28	6
15A	2.4	105	3
Total			442

Number of deer hunters (antlerless tags) in the Wabigoon Forest in 2003 = 442
Conversion to total deer hunters (218 x 1.055) = 230
Average wealth created per deer hunter = $577.00
(Information received from MNR 2001 Provincial Mail Survey)
Total annual expenditures from deer hunting in the Wabigoon Forest
$577.00 x 230 = $132,710.00

Black Bear Hunting Profile

In Ontario (2002), in 63 wildlife management units, there were 11,737 resident and 7,924 non-resident bear licences sold. This is an average of 186 resident and 126 non-resident licences per WMU.

WMU	% in Wabigoon FMU	Resident Bear Hunters per WMU	Resident Hunters X % WMU inFMU	Non-resident Bear Hunters per WMU	# Non-resident Hunters X %WMU inMU
5	18.9	186	35	126	24
7B	1.7	186	3	126	2
8	47.9	186	89	126	60
9A	31.7	186	59	126	40
12A	19.7	186	37	126	25
15A	2.4	186	4	126	3
Total			227		154

There are an estimated 227 resident bear hunters and 154 non-resident bear hunters on the Wabigoon Forest

Hunter Expenditures Reported

Bear Hunter Expenditure	$ Resident	$ Non-Resident
1997	512	2030
1999	603	2030
2000	585	2014
Average	$567.00	$2025.00

Residents (227 x $567.00) + Non-Residents (154 x $2025.00) = $441,000.00

Total Hunting expenditures for the Wabigoon Forest (moose, deer & bear)
Moose $1,411,000.00 Bear $441,000.00 Deer $269,000.00

Total annual economic benefit derived from the three species for the Wabigoon Forest: $2.121 million.

Fishing Licence Profile

Licence Type	Number of Licences	Generated Revenue
Resident	2638	$57,563.25
Non-Resident	16,250	$588,405.25
Total	18,888	$645,968.50

3.6 Use of Crown Land Within the Forest Management Unit for Recreation

3.7 Mining, Aggregate and Hydro Facilities on or Adjacent to the Forest Management Unit

3.7.1 Mining and Mineral Exploration

Historically, mining and mineral exploration have been an important activity in this management unit and historically gold, silver and copper were the predominant commodities mined. Currently there is no metallic mineral production occurring within the management unit. Historical metal production occurred within the management unit between the periods 1936 to 1939. The Sakoose Mine produced 3669 ox of Gold and 145 oz of Silver.

In addition to historical mineral production there are significant concentrations of gold, silver and zinc contained within documented mineral deposits throughout the management unit. There are also significant deposits of granite and peat within the management unit. The total value for these commodities was not available at the time of writing. There are no operating mines on the Wabigoon Forest at current time. However, there are several prospectors in the area that actively conduct surface explorations and several drilling operations establishing area profiles.

There are an estimated 416 active mining claim units recorded throughout this management unit, as indicated on MNDM's CLAIMaps website (MNDM, 2008). Current claim staking targets areas with potential for gold, copper, nickel, molybdenum, uranium and platinum group metals. Historically, several areas within the management unit have seen extensive staking and mineral exploration.

Several quarries have historically operated in the area supplying to a world market. These quarries produce dimensional stone, high-purity silica (quartz), soapstone and railway ballast. A recent survey of granite in the area shows room for further growth and there has been some interest shown in starting a granite cutting plant in North-western Ontario.

3.7.2 Aggregates

The Wabigoon Forest has numerous aggregate extraction areas. There are 45 Category 14 pits, 93 Aggregate Site Authorizations, 11 Ministry of Transportation pits and XX pit and quarries identified on the Management Unit. 80 of the Aggregate Site are Domtar (Weyerhaeuser) pits which are used for the construction of forest access roads. Amount

of aggregate extraction are not available at this time nor is employment related information.

Royalty rate is currently $0.50/tonne. Forest industry is exempt from royalties for the aggregate they use for the construction and maintenance of forest access roads that are on Crown land and open to the public.

3.7.3 Hydro Generation

The Dryden area contains three hydro generation stations facilities. None of these hydro generation dams are located on the Wabigoon Forest. However, all the dams are affected by waterways that are on or directly adjacent to the Wabigoon forest. The McKenzie and Eagle River Generation Stations are located along the English River and the Wainwrigth Generation Station is located on the Wabigoon River in the Dryden District. The dams are all owned by Regional Power Inc. in Mississauga Ontario[5]. There are currently two local individuals employed to operate the three hydro generation facilities in the local area.

The Eagle River and the McKenzie Generation Station both are considered to be intermediate peaking facilities, and operate in unison. The 1.25 MW Eagle River Dam controls outflow through both stoplog controls (spillway) and the operations of the Eagle River Generation Station turbine generators. The facility generates on average 9.030 MWh of electricity a year. Water from the lake is discharged via the Eagle River and flows approximately 2 kilometres downstream to the 0.98 MW McKenzie Generation Station where it is controlled in similar fashion through stoplog controls and the turbine generators. The facility generated an average of 5.970 MWh of electricity each year.

The Wainwrigth Generation Station located about six kilometres north of Dryden. This facility is considered an intermediate peaking facility, with and installed capacity of 1.05 MW through the single fixed blade propeller turbine. The average production of the dam is 5.572 MWh of electricity each year.

3.8 Other

3.8.1 Traplines on the Forest Management Unit, the Number of Trappers, and Trapping Revenue

Currently there are 55 registered traplines on and adjacent to the Wabigoon Forest, each with at least one trapper (maximum of 4). Fifty five of the traplines are directly on the MU. These traplines are operated by 55 primary and 47 secondary trappers. Trapping revenues generated by Dryden District trappers exceeded $211,000.00 for the 2003-2004

[5] Regional Power Inc. Website : http://www.regionalpower.com/OperatingSites/DrydenHydroelectricFacilities/tabid/654/Default.aspx:

trapping season. The predominant species being trapped were; marten, beaver, weasel, mink, muskrat, fisher and more recently wolf.

The following table outlines the revenue generated by trappers in 2005 on the Wabigoon Forest.

DISTRICT	Beaver harve	Mink harvest	Marten harve	Otter harvest	Fisher harves	Lynx harvest	Bobcat harve	Muskrat harv
Wab.	1286	187	1381	158	71	35	2	101
Total	1286	187	1381	158	71	35	2	101
$/, 2003	38.84	29.07	99.45	138.70	106.12	159.56	138.65	6.62
Tot $	$49,948.24	$5,436.09	$137,340.45	$21,914.60	$7,534.52	$5,584.60	$277.30	$668.62

Raccoon har	Red squirrel h	Weasel harve	Coloured fox	Timber wolf h	Coyote harve	Black bear ha	Skunk harves	N Reports re	N trappers	Total
4	35	252	41	20	1	3	1	82	102	
4	35	252	41	20	1	3	1	82	102	
14.23	2.12	9.40	32.70	64.74	32.02	63.03	4.24			
$56.92	$74.20	$2,368.80	$1,340.70	$1,294.80	$32.02	$189.09	$4.24			$234,065.19

3.8.2 Baitfish Operations and Their Economic Impact

Currently there are 13 baitfish harvesters working on 58 baitfish blocks on the Wabigoon Forest. Total minnows harvested for Wabigoon baitfish licence holders was 2347 Gallons at 60 dozen/gal. Total leeches harvested by baitfish licence holders is 2064 pounds

Baitfish	**Harvested**	**Price**	**Total**
Minnows	140820 dozen	$3.00 /dozen	$422,460.00
Leeches	2064 lbs	$15.00 /lb	$30,960.00
Grand Total			**$453,420.00**

3.9 Number of MNR employee's Associated with the Management Unit

The Dryden District OMNR office employs 38 people, of which approximately 8 people work on tasks directly related to the Wabigoon Forest and an additional 13 people work on support of area business (including Enforcement and Information Management staff).

The Parks permanent staff included one Area Superintendents and an Assistant Superintendent. There are also 32 seasonal employees that work at park facilities during

operating season. The Wabigoon Forest does not have any recreational Provincial Park, therefore does not have any seasonal employees.

4 Assessment of change to Socio Economic Descriptions.

There are several significant differences in the Socio Economic Descriptions for the Wabigoon Forest from the 2003 FMP to now. These differences can be summarised under a few topic. The first is a significant change in the information required to be included in the Socio Economic Descriptions. The 2003 FMP was written under the 1994 Forest Management Planning Manual for Ontario's Crown Forest (FMPM) where as a new manual (2004 FMPM) was used to develop the 2008 FMP and the 2008 Annual Report. The main requirement related to reporting communities demographic profiles and reporting on mills receiving wood from the MU has not change significantly. The largest change is in the other tourism, crown land recreation activities, mining, aggregates, hydro generation and MNR employment. Many of these reporting requirements were not included in the 2003 FMPM and were not available for comparison with this Socio Economic Description. However, based on the background research done to create the 2008 Socio Economic Description for the Wabigoon Forest, no significant changes were observed over the five year period in these topics.

4.1 Changes to Community Demographic Profiles

The community demographic profile were updated to use 2001 census data information as compared to the 1996 census data used in the 2003 FMP. Also, the number of communities identified and reported on has increased. Smaller communities such as Ignace and Atikokan now have individual community profiles where as previously they were lumped in with more general district information. Also, aboriginal community profiles were included for the 2008 FMP.

The relative information change observed from the 1996, 2001 and 2006 Census data reflect general population increases in almost all communities. Individual community demographics did not change significantly. The household value for income, and home values also increased for most communities. The relative increases varied by community based on the type of industries and employment trends. Employment trends were relatively consistent with past trends identified in the 2003 FMP. However, more recent downturn in the economy and the significant downturn in the forestry industry is not reflected in any of the census data since the downturn only began in 2006.

4.2 Changes to Timber Industry Profiles

Significant changes to the forest industry have occurred during the implementation of the 2003 Wabigoon FMP. At the beginning of 2003, harvest level and wood utilization were increasing due to a booming market. This continued for several years until around the end of 2005. This mark the beginning of a downturn in the forest industry complicated by high energy cost, high operating cost, a booming Canadian dollar, increased global competition and the softwood lumber dispute. Since then, a global recession has complicated issues resulting in numerous mill closures and approximately 5000 forest industry jobs lost. All mills in Northwest Ontario have been affected by shutdowns, changes to product and complete mill closure. Currently, the majority of sawmill in the NW are indefinitely shutdown with at least three sawmill permanently closed. At least one pulp and paper mills have been permanently closed, two others are shutdown, two more are running at reduce capacity or have shutdown portions of their operations.

The changes reflected in the updated socio economic profiles are not a result of the implementation of the 2003 FMP. These changes are directly related to global economy and are not foreseen to improve form many years. The overall wood harvest and utilization at this time has decreased, but allowable harvest levels have not significantly changed. The decreased in projected harvest volumes from the 2008 FMP were expected based on 2003 and 2008 harvest projection modelling. At current time and throughout the implementation of the FMP, the maximum allowable harvest volumes were fully harvested. As a result, expected dips in future allowable harvest levels may be further mitigated.

4.3 Changes to Non-Timber Profiles

No significant changes were identified in the non-timber profiles for the Wabigoon Forest. No new large scale land tenure initiatives, such as OLL, have occurred since the development of the 2003 FMP. The parks and protected areas have remained the same since the completion of the OLL initiative. However, the information included in the Social Economic Description has improved.

No significant changes were identified in the tourism profiles. The majority of tourism outfitter and recreational opportunities has remained relatively constant throughout the implementation of the 2003 FMP. Noticeable increase in hunting has been identified, however this does not appear to be related to the implementation of the 2003 FMP. The increased deer population in the area and the initially high US dollar have a more significant influence on this topic. As well, the reporting of a record size buck being harvested in the area has fuelled the interest of US hunter. This resulted in significant increase sales of forested patent properties in the area to US and international buyers. More recently, the slowing of the US and global economy has decreased the number of resource based tourists to the area.

Some significant changes to the legislation associated with aggregates has change pit classifications and resulted in companies changing strategies and reclassifying aggregate

extraction areas to be more economically feasible. This is also consistent with new direction in the road construction and operational areas included in the 2004 FMPM. Previously category 9 pits are now being converted to category 14 pits which are utilized as extraction areas for forest management purposes as long as they are within the main road corridor. Other non-forestry related pits continue with their original classification.

The global market for metal and mineral has reached record highs in the past few years. This has resulting in renewed interest in mining and mineral exploration in the area. Although no concrete numbers are available, the number of drilling operations in the area has increased until recently. The continued slowing of the global economy is expected to affect the expansion of mineral exploration in the area. No new mines were opened during the implementation of the 2003 FMP, however future openings of mines is hopeful to improve local economies in face of the ongoing forestry crisis.

4.4 Updated Socio Economic Impact Assessment

A socio economic impact analysis was conducted on the Wabigoon Forest using actual harvest and wood utilization information for each year of the 2003 FMP implementation. The values for harvest, wood utilization by mills, revenue and expenditures were generated from TREES (MNR wood volume tracking system) and provided in the FI Portal MNR tables submission for the production of the 2008 Annual Report. This information was compiled and input were generated for the SEIM 2000 assessment. Each year of the plan was run individually and the Selected Management Alternative scenario from the 2003 FMP. All cost values were based on 2005 product prices which reflect a median year for the plan. The SEIM 2000 model has been updated to include 2001 Census data which is different from the original model used in the production of the 2003 FMP which used 1996 Census data.

Table 5. Summary inputs for SEIM Assessment of 2003 Wabigoon FMP based on Selected Management Alternative and individual year actual expenditures.

	SMA97	*2003-2004*	*2004-2005*	*2005-2006*	*2006-2007*	*2007-2008*
Wages & Salaries	1,504,355.85	993,374	836,626	604,040	781,119	910,960
Employee Benefits	300,871.17	198,675	167,325	120,808	156,224	182,192
Transportation & Communications	940,222.40	620,859	522,891	377,525	488,200	569,350
Services	564,133.44	372,515	313,735	226,515	292,920	341,610
Supplies and Equipment	451,306.75	298,012	250,988	181,212	234,336	273,288
Total Silviculture Expenditure	3,760,889.62	2,483,434	2,091,564	1,510,100	1,952,798	2,277,400

Table 6. SEIM assessment model input based on 2003 SMA projection and TREES volume information for 2003 to 2007 harvest years.

			Allocation of Wood by Management Alternative (Volume)					
Forest Product Company	Product Type	Mill Location	2003 FMP SMA	2003 AR Results	2004 AR Results	2005 AR Results	2006 AR Results	2007 AR Results
Domtar/Weyerhaeuser	Roundwood	Dryden Saw	740,841	97,529	0	0	0	0
		Dryden Pulp		196,829	198,965	168,811	112,914	274,778
		Dryden paper	0	327,239	313,022	264,670	222,120	274,579
		Ear Falls	0	59,822	87,409	112,850	101,260	46,843
Trust Joist	Roundwood	Kenora	80,000	2,083	32,757	36,919	3,162	0
Abitibi		Kenora Pulp		0	0	0	0	0
	Roundwood	Kenora Paper	2,840	0	1,343	309	0	0
		Fort Pulp	0	18,125	10,795	10,726	934	176
		Fort Paper	0	21,994	8,104	11,612	851	263
Ainsworth Engineered Corp.		Barwick	0	0	791	542	0	0
Atikokan Forest Products	Roundwood	Atikokan	80,000	7,481	1,450	30,237	88,320	0
Bowater	Roundwood	Ignace	200,000	0	11,701	23,502	20,772	0
		Thunder Bay Sawmill	0	204,901	132,496	186,465	109,990	0
		Tbay Pulp	0	2,513	23,991	885	0	0
		Thunder Bay Paper	0	4,352	28,009	50	0	0
Brushmat Material/Camp Construction and Bridges			0	0	37	373	71	48
Devlin	Roundwood	Kenora	872	456	1,309	0	0	0
Levesque Plywood Limited		Nipigon	0	0	2,095	1,830	0	0
McKenzie	Roundwood	Hudson	16,347	60	2,377	109,029	93,491	9,608
Multiply Forest Product Inc.	Roundwood	Veneer/Plywood	0	340	2,095	1,830	1,271	0
		Red Rock Pulp	0	0	0	1,071	0	0
Norampac Inc.		Red Rock Paper	0	0	0	0	0	0
Norlaine Forest Products	Sawmill	Norman Burkholder, Mir	0	0	167	0	0	0
Norther Sawmill Inc.	Roundwood	Thunder Bay	872	3,736	0	0	0	0
Skene Lumber	Roundwood	Oxdrift	302	112	51	0	0	0
Rugby Cedar	Roundwood	Oxdrift	0	0	60	0	0	52
L.K.G.H.	Roundwood	Red Lake	0	0	0	0	0	0
Commercial Fuelwood	Roundwood	All	517	0	0	211	0	82
Personal Use		Other Product		74	43	43	3	19
	Roundwood	Fuelwood	1,303	860	906	1,075	887	828
Surplus			0	0	0	0	0	0
Logging Companies			1,043,021	948,506	859,973	963,040	756,046	607,276

4.4.1 Comparison of Economic Values

In general term, the first year of implementation resulted in significantly higher provincial and regional benefit to economic indicators than the projected value of the 2003 SMA scenario. The following years decreased each year until economic indicator values were relatively consistent with the 2003 SMA. This is likely the result in shifts of product and wood utilization by sawmill vs pulp and paper mill. The initial years of the 2003 FMP reflected larger portion of roundwood being used in sawmill with chips being delivered to the pulp mill. As the years progress and the downturn of the forest industry, sawmill were

downsizing or shutting down, resulting in more wood being delivered to lower value products like pulp and paper. Also, in the last two years of the plan (2006 and 2007), the overall harvest was decreasing due to limited market for wood product and economic pricing. This further reduced the overall values of the economic indicators.

Table 7. SEIM assessment values for product pricing based on 2005 RISI information.

Activity/Products	*Price Per Unit*	*Conversion Rates*
Logging - Conifer	59.26 /per m^3	N/A
Logging - Hardwood	37.00 /per m^3	N/A
Paper - Newsprint	747.45 /per Tonne	2.94
Paper - Groundwood Specialty / Uncoated	983.77 /per Tonne	2.94
Paper - Bleachd Kraft - Softwood	859.01 /per Tonne	2.94
Paper - Uncoated Free Sheet	1,168.23 /per Tonne	2.94
Pulp - Softwood	859.01 /per Tonne	5.23
Pulp - Hardwood	753.03 /per Tonne	5.23
Box Board	1,023.13 /per Tonne	2.94
Dimensional Lumber - Softwood	350.00 /per Mfbm	5.09
Lumber - Softwood Studs	310.00 /per Mfbm	5.09
Lumber - Poplar / White Birch	283.37 /per Mfbm	5.36
Lumber - Grade 1 Hardwood	732.74 /per Mfbm	4.87
Oriented Strand Board (OSB)	211.96 /per Msf	2.1
Laminated Stand Lumber (LSL)	211.96 /per Msf	2.1
Hwd/Plywood (Veneer)	84.00 /per Msf	5.5
Chips - Conifer	52.00 /per m^3	0.47
Chips - Hardwood	49.00 /per m^3	0.47
Pr/Pw Poles	136.00 /per pole	1
Commercial Fuelwood	42.00 /per m^3	1

4.4.2 Comparison of Social Indicator Values

The social indicator values were variable by indicator and by community. Values such as average wage and sustainable housing prices reflected continued increases more reflective of inflation than values related to wood production. Other values such as labour force were more consistent with wood utilization by communities. Violent crimes remained relatively consistent for all years, however property crimes tended to increase with high volumes harvested and utilized in a community. Therefore, as overall volume decreased from 2003 to 2007 property crimes decreased. In general, significant fluctuation can be identified by community and year as compared to the 2003 SMA projections. This is a result of a combination of factors, but is not directly related to the implementation of the plan. Shifts in wood utilizations were dictated more by market conditions.

Table 8. Comparison of SEIM assessment values for Economic Indicators.

Jurisdiction	Scenarios (Total Values in Canadian Dollars Except for Employment)					
	2003 FMP SMA	2003 AR Results	2004 AR Results	2005 AR Results	2006 AR Results	2007 AR Results
Province Wide (Ontario)						
Value Added	$207,150,141	$299,129,064	$279,194,342	$276,811,752	$220,421,160	$217,692,037
Gross Sales	$462,179,324	$669,704,130	$624,551,859	$621,778,482	$494,656,155	$485,079,719
Wages & Salaries	$126,124,533	$180,859,423	$168,267,507	$168,164,697	$134,172,975	$130,410,761
Employment (py's)	2925.4	4332.4	3955.9	3856.5	3024.1	2909.5
Government Taxes						
Federal	$38,741,565	$54,649,568	$51,763,365	$52,033,612	$42,063,302	$42,168,351
Provincial	$25,884,105	$36,572,758	$34,450,015	$34,702,703	$27,947,354	$27,644,345
Local	$5,825,231	$8,303,853	$7,715,907	$7,766,038	$6,186,390	$5,953,413
Total	$70,450,901	$99,526,179	$93,929,287	$94,502,353	$76,197,046	$75,766,109
Industrial Output	$460,374,095	$668,512,083	$623,547,906	$621,053,636	$493,718,810	$483,986,567
Gross Domestic Product	$131,539,716	$187,249,655	$173,916,773	$174,554,816	$139,395,426	$134,416,119
Green GDP	$183,339,998	$259,700,828	$241,489,344	$244,762,935	$195,747,556	$187,299,933
Northwest Region						
Value Added	$131,539,716	$187,249,655	$173,916,773	$174,554,816	$139,395,426	$134,416,119
Gross Sales	$290,706,136	$416,721,349	$386,942,944	$389,652,731	$310,641,685	$297,975,076
Wages & Salaries	$81,669,770	$115,104,147	$106,463,345	$107,908,416	$86,419,872	$81,675,620
Employment (py's)	1854.4	2693.3	2446.5	2409.3	1900.3	1788.9
Government Taxes						
Federal	$26,509,519	$36,934,380	$34,775,471	$35,420,537	$28,705,749	$27,996,891
Provincial	$17,521,902	$24,444,735	$22,893,836	$23,380,695	$18,874,543	$18,158,689
Local	$3,675,347	$5,159,771	$4,769,190	$4,870,710	$3,887,400	$3,639,516
Total	$47,706,768	$66,538,886	$62,438,497	$63,671,942	$51,467,692	$49,795,096
Industrial Output	$288,900,908	$415,529,299	$385,938,994	$388,927,882	$309,704,341	$296,881,924
Gross Domestic Product	$131,539,716	$187,249,655	$173,916,773	$174,554,816	$139,395,426	$134,416,119
Green GDP	$118,998,212	$165,205,442	$153,108,026	$156,902,001	$125,586,394	$116,264,261
Dryden District						
Employment (py's)	1253.52	1736.49	1537	1397.81	1119.59	1316.97
Industrial Output	$144,175,418	$189,103,297	$170,249,443	$164,923,746	$132,940,127	$148,148,950
Green GDP	$118,998,212	$165,205,442	$153,108,026	$156,902,001	$125,586,394	$116,264,261
Thunder Bay District						
Employment (py's)	421.15	705.25	660.59	638.41	464.33	331.61
Industrial Output	$109,145,678	$182,247,140	$174,578,921	$165,224,023	$127,273,565	$123,299,188
Green GDP	$123,735,990	$175,989,709	$162,480,569	$165,343,189	$132,316,099	$126,095,119
Sioux Lookout District						
Employment (py's)	15	3.95	5.36	88.56	74.52	9.7
Industrial Output	$3,477,840	$1,935,575	$1,889,172	$11,570,732	$10,296,770	$1,875,192
Green GDP	$126,425,201	$178,950,471	$166,042,960	$167,570,107	$133,994,014	$128,171,171
Kenora District						
Employment (py's)	61.04	154.71	105.73	129.71	131.23	64.76
Industrial Output	$13,106,458	$25,741,124	$19,006,435	$22,878,239	$20,531,978	$12,327,703
Green GDP	$126,272,313	$178,885,912	$165,926,523	$167,597,950	$134,052,746	$128,135,246
Fort Frances District						
Employment (py's)	61.04	154.71	105.73	129.71	131.23	64.76
Industrial Output	$13,106,458	$25,741,124	$19,006,435	$22,878,239	$20,531,978	$12,327,703
Green GDP	$126,406,463	$178,112,637	$165,654,988	$167,206,869	$133,938,782	$128,143,681

4.4.3 Comparison of Environmental Indicator Values

The environmental indicators are directly related to two main point; total wood utilized and the type of manufacturing facilities receiving wood. The highest environmental impacts were identified with the higher overall wood utilization in 2003 and slowly decrease over time. However, the change in the distribution of wood being allocated to sawmill vs pulp and paper mills has also affected the overall environmental impact. As more sawmills are closing and more wood is being chipped and delivered to the pulp and paper mill, this also increased the environmental impact. This is because the amount of pollutant and energy requirement to produce pulp and paper are significantly higher than those to manufacture lumber. In comparison of 2003 SMA most environmental indicators were higher for the implementation. This is likely due to less wood being delivered to sawmill than what was originally projected.

Table 9. Comparison of Environmental indicators for the projected 2003 FMP and the 5 years of implementation for the Northwest Region.

Northwest Region Environmental Indicators	2003 FMP SMA	2003 AR Results	2004 AR Results	2005 AR Results	2006 AR Results	2007 AR Results
Water Useage (millions of cu.m.)						
Intake	95.48	150.84	140.86	128.88	100.02	108.03
Discharge	94.17	148.73	138.86	127.12	98.66	106.45
Net Usage	1.30	0.19	2.00	0.16	0.12	0.14
Air Emmissions (Tonnes)						
Particulate	100.844	159.695	144.935	144.785	113.422	103.119
Sulphur Oxides	103.947	172.304	164.003	141.561	109.158	130.675
Nitrogen Oxide	82.906	136.083	128.54	113.68	87.92	100.743
Volatile Organic C	95.854	150.051	136.483	135.357	105.94	97.899
Carbon Monixide	210.069	336.905	316.537	284.325	220.223	245.795
Energy Consumption (terajoules)						
Coal	682.026	1113.503	1063.326	916.838	709.216	856.275
Crude Oil	266.389	396.463	362	354.404	276.623	264.696
Natural Gas	955.784	1531.737	1449.921	1289.585	1001.981	1147.381
Electricity	421.954	683.153	650.605	567	439.416	521.384
Nuclear Steam	25.821	37.826	34.622	34.506	27.243	25.646
Total	2351.974	3762.682	3560.474	3162.333	2454.479	2815.381
Solid Waste (Tonnes)	6215.767	9165.91	8392.654	8069.271	6354.096	6250.308
Contaminants (Tonnes)						
Ammonia-N	6.998	12.097	11.814	9.373	7.157	9.919
Oil & Grease	0.377	0.607	0.57	0.513	0.397	0.441
TSS	693.304	1202.868	1176.721	928.37	708.383	991.171
Phosphorous	5.566	9.661	9.454	7.452	5.686	7.967
Cyanide	0.03	0.049	0.046	0.04	0.031	0.037
Phenolics	0.064	0.11	0.107	0.087	0.066	0.088
Copper	0.006	0.01	0.009	0.008	0.006	0.007
Lead	0.004	0.006	0.006	0.005	0.004	0.004
Zinc	1.323	2.287	2.233	1.773	1.354	1.874
Greenhouse Gases (Tonnes)						
Carbon Dioxide	115451	187966.8	178261.6	155425.1	119993	141243.1
Methane	145.1	236.7	224.5	195.6	151	177.9
Nitrous Oxide	214	351.8	335	288.1	222.1	267.8
Green GDP ($ Millions)						
GDP	$131,539,716	$187,249,655	$173,916,773	$174,554,816	$139,395,426	$134,416,119
Green Cost	$15,526,689	$26,047,870	$25,054,451	$20,891,082	$16,053,635	$20,426,241
Green GDP	$116,013,027	$161,201,785	$148,862,322	$153,663,734	$123,341,791	$113,989,878

Appendix 1
Social Economic Impact Assessment Results

Table 10. Comparison of Social indicators for the projected 2003 FMP and the 5 years of implementation for the Dryden District.

Dryden District		2003 FMP SMA	2003 AR Results	2004 AR Results	2005 AR Results	2006 AR Results	2007 AR Results
Labour Force Structure	Agriculture	25.68	23.35	23.18	27.96	27.11	18.83
	Logging & Forestry	237.11	208.26	206.24	255.62	245.83	160.04
	Fishing & Trapping	2.46	2.57	2.59	2.63	2.61	2.54
	Mining & Quarrying	8.19	9.43	9.78	9.64	9.46	9.56
	Manufacturing	175.39	201.65	204.08	190.10	187.25	216.76
	Construction	9.69	10.67	10.87	10.67	10.56	10.99
	Trans., Comm. & Utilities	51.74	49.28	49.16	49.69	50.44	48.52
	Trade & Finance	99.20	99.58	98.10	98.01	96.89	97.91
	Services	71.70	64.83	64.69	63.63	66.54	65.99
Average Wage ($)		$44,041	$42,737	$43,517	$44,788	$45,477	$45,657
Family Indicators	Divorce	14.2	19.7	17.5	15.9	12.7	15
	Family Violence	-5.5	-7.6	-6.8	-6.1	-4.9	-5.8
Crime	Murder	-0.2	-0.3	-0.2	-0.2	-0.2	-0.2
	Attempted Murder	-0.3	-0.4	-0.3	-0.3	-0.2	-0.3
	Robbery	-4.8	-6.6	-5.9	-5.3	-4.3	-5
	Property Crimes	-342.9	-475.1	-420.5	-382.4	-306.3	-360.3
	Break & Enter	-94.7	-131.1	-116.1	-105.6	-84.5	-99.5
	Theft	-233.4	-323.3	-286.2	-260.3	-208.5	-245.2
	Possession of Stolen Goods	-6.1	-8.4	-7.4	-6.8	-5.4	-6.4
	Fraud	-7.7	-10.7	-9.5	-8.6	-6.9	-8.1
	Total	-690	-955.9	-846.1	-769.4	-616.3	-724.9
Sustainable House Price ($)		$189,749	$184,132	$187,490	$192,969	$195,936	$196,711
Logging Sector Multiplier		7.65	8.71	8.79	7.11	7.39	11.3
Wood Products Sector Multiplier		14.27	31.86	71.78	56.65	55.3	90.45
Pulp and Paper Sector Multiplier		5.05	3.67	3.42	3.75	3.81	3.17
Forestry Sector Multiplier		2.51	2.39	2.38	2.35	2.41	2.41

Table 11. Comparison of Social indicators for the projected 2003 FMP and the 5 years of implementation for the Thunder Bay District.

Thunder Bay District		2003 FMP SMA	2003 AR Results	2004 AR Results	2005 AR Results	2006 AR Results	2007 AR Results
Labour Force Structure	Agriculture	104.19	89.55	84.55	93.47	98.68	106.25
	Logging & Forestry	0.00	0.00	0.00	0.00	0.00	0.00
	Fishing & Trapping	79.03	70.32	68.22	68.81	73.71	95.52
	Mining & Quarrying	18.52	17.28	17.37	16.49	17.57	25.93
	Manufacturing	291.37	307.28	316.11	284.92	272.85	284.36
	Construction	16.85	15.04	15.43	14.92	15.34	18.06
	Trans., Comm. & Utilities	235.58	208.18	202.77	208.08	222.16	281.35
	Trade & Finance	75.02	87.50	84.11	95.05	92.39	59.75
	Services	53.88	51.48	51.92	53.53	54.28	51.94
Average Wage ($)		$44,041	$42,737	$43,517	$44,788	$45,477	$45,657
Family Indicators	Divorce	5	8.4	7.9	7.6	5.5	4
	Family Violence	-1.9	-3.3	-3	-2.9	-2.1	-1.5
Crime	Murder	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
	Attempted Murder	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1
	Robbery	-1.7	-2.8	-2.6	-2.6	-1.9	-1.3
	Property Crimes	-120.9	-202.5	-189.6	-183.3	-133.3	-95.2
	Break & Enter	-33.4	-55.9	-52.3	-50.6	-36.8	-26.3
	Theft	-82.3	-137.8	-129.1	-124.7	-90.7	-64.8
	Possession of Stolen Goods	-2.1	-3.6	-3.3	-3.2	-2.4	-1.7
	Fraud	-2.7	-4.6	-4.3	-4.1	-3	-2.1
	Total	-243.3	-407.4	-381.6	-368.7	-268.2	-191.5
Sustainable House Price ($)		$177,378	$172,127	$175,266	$180,388	$183,162	$183,886
Logging Sector Multiplier		0	0	0	0	0	0
Wood Products Sector Multiplier		50.17	7.09	10.01	7.25	8.63	61.72
Pulp and Paper Sector Multiplier		5.21	9.71	6.68	11.67	10.95	5.73
Forestry Sector Multiplier		4.72	4.1	4	4.47	4.83	5.24

Table 12. Comparison of Social indicators for the projected 2003 FMP and the 5 years of implementation for the Sioux Lookout District.

Sioux Lookout District		2003 FMP SMA	2003 AR Results	2004 AR Results	2005 AR Results	2006 AR Results	2007 AR Results
Labour Force Structure	Agriculture	9870.27	46882.67	31585.74	2611.28	2454.87	12615.51
	Logging & Forestry	27.55	119.06	78.81	5.63	5.18	30.23
	Fishing & Trapping	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Mining & Quarrying	627.62	3453.81	2437.19	156.83	145.80	1074.39
	Manufacturing	902.62	1069.33	993.88	861.16	863.53	911.19
	Construction	9.45	0.14	4.00	11.41	11.40	8.68
	Trans., Comm. & Utilities	18.14	0.26	7.68	21.89	21.87	16.66
	Trade & Finance	136.02	1.97	57.61	164.17	163.99	124.93
	Services	26.90	0.39	11.39	32.47	32.43	24.71
Average Wage ($)		$44,041	$42,737	$43,517	$44,788	$45,477	$45,657
Family Indicators	Divorce	0.2	0	0.1	1.1	0.9	0.1
	Family Violence	-0.1	0	0	-0.4	-0.4	0
Crime	Murder	0	0	0	0	0	0
	Attempted Murder	0	0	0	0	0	0
	Robbery	-0.1	0	0	-0.4	-0.3	0
	Property Crimes	-4.5	-1.2	-1.6	-26.7	-22.5	-2.9
	Break & Enter	-1.2	-0.3	-0.4	-7.4	-6.2	-0.8
	Theft	-3.1	-0.8	-1.1	-18.2	-15.3	-2
	Possession of Stolen Goods	-0.1	0	0	-0.5	-0.4	-0.1
	Fraud	-0.1	0	0	-0.6	-0.5	-0.1
	Total	-9.1	-2.4	-3.3	-53.7	-45.2	-5.9
Sustainable House Price ($)		$160,718	$155,960	$158,804	$163,445	$165,958	$166,615
Logging Sector Multiplier		80.54	17.58	27.22	398.48	433.58	73.05
Wood Products Sector Multiplier		2	2.11	2.12	2.01	2	2.04
Pulp and Paper Sector Multiplier		599.56	39115.85	1368.74	502.67	503.18	649.75
Forestry Sector Multiplier		1.95	1.88	1.96	1.99	1.99	1.97

Table 13. Comparison of Social indicators for the projected 2003 FMP and the 5 years of implementation for the Kenora District.

Kenora District		2003 FMP SMA	2003 AR Results	2004 AR Results	2005 AR Results	2006 AR Results	2007 AR Results
Labour Force Structure	Agriculture	219.36	671.18	403.46	422.93	675.74	644.37
	Logging & Forestry	22.99	65.50	37.99	44.00	69.50	55.29
	Fishing & Trapping	80.48	228.02	144.09	139.66	215.78	237.81
	Mining & Quarrying	96.93	331.50	210.14	193.55	297.99	323.41
	Manufacturing	506.85	290.66	404.29	418.11	326.61	259.50
	Construction	11.04	27.49	19.07	17.96	25.97	30.68
	Trans., Comm. & Utilities	24.25	1.59	14.77	14.93	2.51	0.00
	Trade & Finance	158.91	222.81	182.74	175.21	197.91	234.71
	Services	40.41	43.89	44.68	45.19	47.70	44.84
Average Wage ($)		$44,041	$42,737	$43,517	$44,788	$45,477	$45,657
Family Indicators	Divorce	1.2	0.5	0.7	0.7	0.3	0.3
	Family Violence	-0.5	-0.2	-0.3	-0.3	-0.1	-0.1
Crime	Murder	0	0	0	0	0	0
	Attempted Murder	0	0	0	0	0	0
	Robbery	-0.4	-0.2	-0.3	-0.2	-0.1	-0.1
	Property Crimes	-28.8	-11.6	-18.1	-17.6	-8.4	-8.1
	Break & Enter	-8	-3.2	-5	-4.9	-2.3	-2.2
	Theft	-19.6	-7.9	-12.3	-12	-5.7	-5.5
	Possession of Stolen Goods	-0.5	-0.2	-0.3	-0.3	-0.1	-0.1
	Fraud	-0.6	-0.3	-0.4	-0.4	-0.2	-0.2
	Total	-58	-23.3	-36.3	-35.4	-16.9	-16.3
Sustainable House Price ($)		$178,330	$173,050	$176,206	$181,355	$184,144	$184,873
Logging Sector Multiplier		181.1	60.37	107.29	92.69	57.02	71.26
Wood Products Sector Multiplier		2.76	5.4	3.71	3.38	4.57	6.33
Pulp and Paper Sector Multiplier		72.49	10765.6	61.65	226.75	6830.96	0
Forestry Sector Multiplier		2.62	4.95	3.39	3.21	4.23	5.81

Table 14 Comparison of Social indicators for the projected 2003 FMP and the 5 years of implementation for the Fort Frances District.

Fort Frances		2003 FMP SMA	2003 AR Results	2004 AR Results	2005 AR Results	2006 AR Results	2007 AR Results
Labour Force Structure	Agriculture	84.17	41.04	54.40	44.88	34.74	67.53
	Logging & Forestry	69.41	30.18	40.01	35.64	26.65	46.31
	Fishing & Trapping	39.63	22.11	29.05	23.54	18.93	39.47
	Mining & Quarrying	174.00	106.93	145.55	108.70	82.54	184.72
	Manufacturing	51.30	178.46	133.39	177.63	194.18	47.03
	Construction	28.86	19.69	24.24	18.88	15.34	32.25
	Trans., Comm. & Utilities	0.00	16.47	10.56	16.53	20.04	0.40
	Trade & Finance	177.69	138.43	151.62	141.58	147.56	182.00
	Services	116.90	88.50	98.99	86.89	79.04	118.66
Average Wage ($)		$44,041	$42,737	$43,517	$44,788	$45,477	$45,657
Family Indicators	Divorce	0.7	1.9	1.3	1.6	1.6	0.8
	Family Violence	-0.3	-0.7	-0.5	-0.6	-0.6	-0.3
Crime	Murder	0	0	0	0	0	0
	Attempted Murder	0	0	0	0	0	0
	Robbery	-0.2	-0.6	-0.4	-0.5	-0.5	-0.3
	Property Crimes	-17.7	-44.9	-30.7	-37.6	-38.1	-18.8
	Break & Enter	-4.9	-12.4	-8.5	-10.4	-10.5	-5.2
	Theft	-12	-30.5	-20.9	-25.6	-25.9	-12.8
	Possession of Stolen Goods	-0.3	-0.8	-0.5	-0.7	-0.7	-0.3
	Fraud	-0.4	-1	-0.7	-0.8	-0.9	-0.4
	Total	-35.6	-90.3	-61.7	-75.7	-76.6	-37.8
Sustainable House Price ($)		$177,165	$171,920	$175,055	$180,171	$182,941	$183,665
Logging Sector Multiplier		65.56	137.87	107.34	116.74	152.7	97.59
Wood Products Sector Multiplier		38.71	30.22	40.27	9.62	3.99	52.39
Pulp and Paper Sector Multiplier		155.73	5.52	8.41	8.7	84.8	235.84
Forestry Sector Multiplier		21.05	4.52	6.53	4.39	3.72	29.78

Table 15 Comparison of Environmental indicators for the projected 2003 FMP and the 5 years of implementation for the Dryden District.

Dryden District Environmental Indicators	2003 FMP SMA	2003 AR Results	2004 AR Results	2005 AR Results	2006 AR Results	2007 AR Results
Water Useage (millions of cu.m.)						
Intake	30.53	48.74	44.45	39.22	30.88	39.07
Discharge	29.96	47.75	43.54	38.43	30.26	38.25
Net Usage	0.57	0.09	0.91	0.07	0.06	0.07
Air Emmissions (Tonnes)						
Particulate	64.535	95.403	83.175	70.976	56.114	75.326
Sulphur Oxides	50.322	88.437	82.007	68.844	54.295	75.171
Nitrogen Oxide	46.964	80.464	74.095	62.534	49.32	67.633
Volatile Organic C	47.149	68.452	59.428	51.16	40.444	53.426
Carbon Monixide	75.253	124.503	114.264	98.876	77.9	102.136
Energy Consumption (terajoules)						
Coal	682.026	1113.503	1063.326	916.838	709.216	856.275
Crude Oil	266.389	396.463	362	354.404	276.623	264.696
Natural Gas	955.784	1531.737	1449.921	1289.585	1001.981	1147.381
Electricity	421.954	683.153	650.605	567	439.416	521.384
Nuclear Steam	25.821	37.826	34.622	34.506	27.243	25.646
Total	2351.974	3762.682	3560.474	3162.333	2454.479	2815.381
Solid Waste (Tonnes)	4225.901	6049.166	5402.997	4840.805	3878.447	4692.195
Contaminants (Tonnes)						
Ammonia-N	5.023	9.567	9.072	7.53	5.933	8.384
Oil & Grease	0.079	0.13	0.119	0.105	0.083	0.105
TSS	517.269	986.983	936.285	776.675	612.019	865.727
Phosphorous	4.167	7.954	7.546	6.259	4.932	6.978
Cyanide	0.01	0.017	0.016	0.014	0.011	0.014
Phenolics	0.041	0.078	0.073	0.061	0.048	0.068
Copper	0.002	0.003	0.002	0.002	0.002	0.002
Lead	0.001	0.001	0.001	0.001	0.001	0.001
Zinc	0.958	1.826	1.731	1.437	1.132	1.599
Greenhouse Gases (Tonnes)						
Carbon Dioxide	115451	187966.8	178261.6	155425.1	119993	141243.1
Methane	145.1	236.7	224.5	195.6	151	177.9
Nitrous Oxide	214	351.8	335	288.1	222.1	267.8
Green GDP ($ Millions)						
GDP	$131,539,716	$187,249,655	$173,916,773	$174,554,816	$139,395,426	$134,416,119
Green Cost	$12,541,504	$22,044,213	$20,808,747	$17,652,815	$13,809,032	$18,151,858
Green GDP	$118,998,212	$165,205,442	$153,108,026	$156,902,001	$125,586,394	$116,264,261

Table 16 Comparison of Environmental indicators for the projected 2003 FMP and the 5 years of implementation for the Thunder Bay District.

Thunder Bay District Environmental Indicators	2003 FMP SMA	2003 AR Results	2004 AR Results	2005 AR Results	2006 AR Results	2007 AR Results
Water Useage (millions of cu.m.)						
Intake	63.41	99.36	94.19	85.19	65.74	68.43
Discharge	62.69	98.29	93.14	84.28	65.04	67.69
Net Usage	0.72	1.07	1.05	0.91	0.70	0.74
Air Emmissions (Tonnes)						
Particulate	21.664	45.385	41.181	38.433	26.365	17.643
Sulphur Oxides	43.11	65.706	65.361	54.324	41.307	46.038
Nitrogen Oxide	31.505	47.216	47.109	39.596	29.782	30.166
Volatile Organic C	38.647	68.978	63.032	59.385	43.627	37.708
Carbon Monixide	125.559	196.604	188.073	167.113	128.605	136.528
Energy Consumption (terajoules)						
Coal	682.026	1113.503	1063.326	916.838	709.216	856.275
Crude Oil	266.389	396.463	362	354.404	276.623	264.696
Natural Gas	955.784	1531.737	1449.921	1289.585	1001.981	1147.381
Electricity	421.954	683.153	650.605	567	439.416	521.384
Nuclear Steam	25.821	37.826	34.622	34.506	27.243	25.646
Total	2351.974	3762.682	3560.474	3162.333	2454.479	2815.381
Solid Waste (Tonnes)	1393.155	2235.181	2146.593	2015.933	1468.834	1076.698
Contaminants (Tonnes)						
Ammonia-N	1.842	1.821	2.326	1.406	1.088	1.426
Oil & Grease	0.196	0.322	0.305	0.27	0.208	0.233
TSS	170.929	155.361	209.927	117.505	91.049	123.296
Phosphorous	1.368	1.235	1.676	0.932	0.722	0.983
Cyanide	0.014	0.022	0.021	0.018	0.014	0.016
Phenolics	0.021	0.025	0.028	0.02	0.015	0.018
Copper	0.002	0.003	0.002	0.002	0.002	0.002
Lead	0.003	0.004	0.004	0.004	0.003	0.003
Zinc	0.346	0.337	0.432	0.261	0.202	0.258
Greenhouse Gases (Tonnes)						
Carbon Dioxide	115451	187966.8	178261.6	155425.1	119993	141243.1
Methane	145.1	236.7	224.5	195.6	151	177.9
Nitrous Oxide	214	351.8	335	288.1	222.1	267.8
Green GDP ($ Millions)						
GDP	$131,539,716	$187,249,655	$173,916,773	$174,554,816	$139,395,426	$134,416,119
Green Cost	$7,803,726	$11,259,946	$11,436,204	$9,211,627	$7,079,327	$8,321,000
Green GDP	$123,735,990	$175,989,709	$162,480,569	$165,343,189	$132,316,099	$126,095,119

Table 17 Comparison of Environmental indicators for the projected 2003 FMP and the 5 years of implementation for the Sioux Lookout District.

Sioux Lookout District Environmental Indicators	2003 FMP SMA	2003 AR Results	2004 AR Results	2005 AR Results	2006 AR Results	2007 AR Results
Water Useage (millions of cu.m.)						
Intake	228931.50	6972.40	41125.20	1584380.70	1331745.50	137441.00
Discharge	226369.30	6917.90	40693.80	1566720.00	1316886.70	135942.80
Net Usage	2562.20	54.50	431.50	17660.60	14858.70	1498.20
Air Emmissions (Tonnes)						
Particulate	2.356	1.304	1.411	11.31	9.502	1.73
Sulphur Oxides	0.969	0.548	0.782	2.935	2.405	0.36
Nitrogen Oxide	0.606	0.24	0.3	3.106	2.61	0.376
Volatile Organic C	1.607	0.781	0.876	8.107	6.818	1.148
Carbon Monixide	0.931	0.296	0.525	4.091	3.397	0.367
Energy Consumption (terajoules)						
Coal	682.026	1113.503	1063.326	916.838	709.216	856.275
Crude Oil	266.389	396.463	362	354.404	276.623	264.696
Natural Gas	955.784	1531.737	1449.921	1289.585	1001.981	1147.381
Electricity	421.954	683.153	650.605	567	439.416	521.384
Nuclear Steam	25.821	37.826	34.622	34.506	27.243	25.646
Total	2351.974	3762.682	3560.474	3162.333	2454.479	2815.381
Solid Waste (Tonnes)	46.224	14.006	18.091	266.039	223.689	30.578
Contaminants (Tonnes)						
Ammonia-N	0.013	0.017	0.017	0.022	0.017	0.012
Oil & Grease	0.014	0.019	0.018	0.022	0.017	0.012
TSS	0.222	0.229	0.227	0.664	0.544	0.181
Phosphorous	0	0	0	0.003	0.003	0
Cyanide	0.001	0.001	0.001	0.001	0.001	0.001
Phenolics	0	0	0	0	0	0
Copper	0.001	0.001	0.001	0.001	0.001	0.001
Lead	0	0	0	0	0	0
Zinc	0.001	0.001	0.001	0.002	0.002	0.001
Greenhouse Gases (Tonnes)						
Carbon Dioxide	115451	187966.8	178261.6	155425.1	119993	141243.1
Methane	145.1	236.7	224.5	195.6	151	177.9
Nitrous Oxide	214	351.8	335	288.1	222.1	267.8
Green GDP ($ Millions)						
GDP	$131,539,716	$187,249,655	$173,916,773	$174,554,816	$139,395,426	$134,416,119
Green Cost	$5,267,403	$8,363,743	$7,990,250	$6,956,866	$5,342,680	$6,280,873
Green GDP	$126,272,313	$178,885,912	$165,926,523	$167,597,950	$134,052,746	$128,135,246

Table 18 Comparison of Environmental indicators for the projected 2003 FMP and the 5 years of implementation for the Kenora District.

Kenora District Environmental Indicators	2003 FMP SMA	2003 AR Results	2004 AR Results	2005 AR Results	2006 AR Results	2007 AR Results
Water Useage (millions of cu.m.)						
Intake	1292275.20	66288.00	545241.70	504335.20	59784.00	23485.90
Discharge	1276408.10	65246.90	537979.10	498227.70	58870.60	22995.70
Net Usage	15867.00	1041.10	7262.60	6107.40	913.40	490.30
Air Emmissions (Tonnes)						
Particulate	10.118	3.514	5.886	5.866	2.648	2.27
Sulphur Oxides	8.86	10.588	11.012	9.276	6.592	7.767
Nitrogen Oxide	3.398	1.611	2.386	2.17	1.109	1.117
Volatile Organic C	7.197	2.296	4.058	4.047	1.738	1.474
Carbon Monixide	8.02	7.666	8.612	7.289	4.775	5.599
Energy Consumption (terajoules)						
Coal	682.026	1113.503	1063.326	916.838	709.216	856.275
Crude Oil	266.389	396.463	362	354.404	276.623	264.696
Natural Gas	955.784	1531.737	1449.921	1289.585	1001.981	1147.381
Electricity	421.954	683.153	650.605	567	439.416	521.384
Nuclear Steam	25.821	37.826	34.622	34.506	27.243	25.646
Total	2351.974	3762.682	3560.474	3162.333	2454.479	2815.381
Solid Waste (Tonnes)	321.371	141.727	211.476	203.52	101.195	100.522
Contaminants (Tonnes)						
Ammonia-N	0.081	0.077	0.096	0.07	0.048	0.056
Oil & Grease	0.057	0.081	0.078	0.068	0.051	0.059
TSS	3.46	0.752	2.86	1.208	0.492	0.537
Phosphorous	0.024	0	0.017	0.005	0	0
Cyanide	0.004	0.006	0.006	0.005	0.003	0.004
Phenolics	0.001	0.001	0.001	0.001	0.001	0.001
Copper	0.001	0.001	0.001	0.001	0.001	0.001
Lead	0	0	0	0	0	0
Zinc	0.008	0.003	0.007	0.003	0.002	0.002
Greenhouse Gases (Tonnes)						
Carbon Dioxide	115451	187966.8	178261.6	155425.1	119993	141243.1
Methane	145.1	236.7	224.5	195.6	151	177.9
Nitrous Oxide	214	351.8	335	288.1	222.1	267.8
Green GDP ($ Millions)						
GDP	$131,539,716	$187,249,655	$173,916,773	$174,554,816	$139,395,426	$134,416,119
Green Cost	$5,267,403	$8,363,743	$7,990,250	$6,956,866	$5,342,680	$6,280,873
Green GDP	$126,272,313	$178,885,912	$165,926,523	$167,597,950	$134,052,746	$128,135,246

Table 19 Comparison of Environmental indicators for the projected 2003 FMP and the 5 years of implementation for the Fort Frances District.

Fort Frances District Environmental Indicators	2003 FMP SMA	2003 AR Results	2004 AR Results	2005 AR Results	2006 AR Results	2007 AR Results
Water Useage (millions of cu.m.)						
Intake	13705.50	2210033.80	962974.10	1533549.40	1269262.20	27364.80
Discharge	12976.90	2158285.20	939959.80	1501947.70	1253547.60	26635.40
Net Usage	728.60	51748.30	23014.20	31601.40	15714.60	729.50
Air Emmissions (Tonnes)						
Particulate	1.222	7.171	3.869	6.784	8.929	1.217
Sulphur Oxides	0.331	5.432	2.578	3.598	2.355	0.327
Nitrogen Oxide	0.308	4.918	2.333	3.413	2.615	0.302
Volatile Organic C	0.715	4.779	2.511	4.626	6.353	0.73
Carbon Monixide	0.116	6.284	2.793	4.258	3.212	0.132
Energy Consumption (terajoules)						
Coal	682.026	1113.503	1063.326	916.838	709.216	856.275
Crude Oil	266.389	396.463	362	354.404	276.623	264.696
Natural Gas	955.784	1531.737	1449.921	1289.585	1001.981	1147.381
Electricity	421.954	683.153	650.605	567	439.416	521.384
Nuclear Steam	25.821	37.826	34.622	34.506	27.243	25.646
Total	2351.974	3762.682	3560.474	3162.333	2454.479	2815.381
Solid Waste (Tonnes)	220.015	565.63	386.379	459.502	434.569	235.38
Contaminants (Tonnes)						
Ammonia-N	0.023	0.587	0.275	0.321	0.049	0.024
Oil & Grease	0.016	0.031	0.025	0.026	0.021	0.018
TSS	1.254	59.035	26.82	31.652	3.726	1.1
Phosphorous	0.007	0.471	0.211	0.251	0.026	0.005
Cyanide	0.001	0.002	0.001	0.001	0.001	0.001
Phenolics	0.002	0.007	0.004	0.004	0.002	0.002
Copper	0.001	0.001	0.001	0.001	0.001	0.001
Lead	0	0	0	0	0	0
Zinc	0.01	0.119	0.06	0.067	0.015	0.012
Greenhouse Gases (Tonnes)						
Carbon Dioxide	115451	187966.8	178261.6	155425.1	119993	141243.1
Methane	145.1	236.7	224.5	195.6	151	177.9
Nitrous Oxide	214	351.8	335	288.1	222.1	267.8
Green GDP ($ Millions)						
GDP	$131,539,716	$187,249,655	$173,916,773	$174,554,816	$139,395,426	$134,416,119
Green Cost	$5,133,253	$9,137,018	$8,261,785	$7,347,947	$5,456,644	$6,272,438
Green GDP	$126,406,463	$178,112,637	$165,654,988	$167,206,869	$133,938,782	$128,143,681

MANAGEMENT UNIT NAME: Wabigoon Forest
PLAN PERIOD: April 1, 2003 TO March 31, 2008

AR-7: Summary of Planned and Actual Harvest Area

			Area (ha) - Annualized										
			PLANNED HARVEST			ACTUAL HARVEST							
			Past Plans			Past Plans			Current Plan 2003- 2008				
											Projections		
Forest Unit			1988-1993	1993-1998	1998-2003	1988-1993	1993-1998	1998-2003	Planned Harvest	Actual Harvest	Medium-Term 2023	Long-Term 2103	Salvage 2003-2008
1993	1998	2003											
BWO	Bw	BwDom		85	242		41	209	1	4	90	45	5
		CeDry							0	1	37	15	1
		MxCon							640	532	573	207	14
	Po3/oh	MxHwd			649			502	1290	1129	1288	102	64
OCO	OC	OcLow		104	33		30	2	0	3	1	17	1
	Pj3	PjMx			1179			1,010	897	937	587	722	47
PJO	Pj2	PjPrd		2586	1360		2,185	1,165	561	588	294	614	23
POO	Po2	PoAll		711	240		363	172	293	267	122	504	2
	Pr	PwrMx			27			15	6	3	42	50	
PW0	Pw	PwDom		10	1		2	1	0	0	0	68	
	SP3	SbLow			44			23	297	211	360	383	19
BFO	Bf	SbMx		282	796		96	355	1007	837	1300	690	110
SP0	SP1	SbPrd		1503	2214		872	1,573	1027	899	759	1419	57
		ShAll							387	338	480	686	0
		Total	0	5281	6784	0	3589	5027	6406	5746	5933	5522	343

Source: Trend Analysis table 4 (2005)
2003 FMP-18
Table 2 IFA (2005) FU descriptions
2007/08 AR Actual Harvest
2003 Model output App.9G p.4
Medium term avg +20 to +100
Long Term avg +100 to +150

MANAGEMENT UNIT NAME: Wabigoon Forest
PLAN PERIOD: April 1, 2003 TO March 31, 2008

AR-8: Summary of Planned and Actual Harvest Volume

	Volume ('000 m^3) - Annualized									
	PLANNED HARVEST VOLUME			ACTUAL HARVEST VOLUME						
	Past Plans			Past Plans			Current Plan 2003 -2008			
									Projections	
Species	1988-1993	1993-1998	1998-2003	1988-1993	1993-1998	1998-2003	Planned Harvest	Actual Harvest	Medium-Term 2023	Long-Term 2103
B		49	81		31	40	36	12	44	18
BW		35	37		0	18	27	13	32	20
OC		9	6		0	1	4	0	13	4
OH		0	1		0	18	0	0	0	0
PJ		408	368		318	286	304	324	207	308
PO		198	198		81	45	290	173	259	160
PR		1	3		0	1	1	0	0	4
PW		6	2		0	0	0	0	1	2
S		262	347		191	287	345	303	279	267
Total		970	1044	0	623	694	1006	826	554	509

Source:
Table 4.3.1 Report of Wood Utilization by licensee 1988-1993 TMP (actual numbers by WG)
Trend Analysis table 3
2007/08 AR-5 (Actual Harvest - 2003)
App.9G med/long term projections

MANAGEMENT UNIT NAME: Wabigoon Forest
PLAN PERIOD: April 1, 2003 TO March 31, 2008

AR-9: Summary of Planned and Actual Renewal, Tending and Protection Operations

Operation	Area (ha) - Annualized							
	PLANNED			ACTUAL			PLANNED	ACTUAL
	Past Plans			Past Plans			Current Plan	Current Plan
	1988-1993	1993-1998	1998-2003	1988-1993	1993-1998	1998-2003	2003	2003
Renewal								
Natural Regeneration								
Clearcut Silvicultural System (even-aged)		270	1571		292	503	1459	1915
Shelterwood Silvicultural System (even-aged)		0	0		0	0	24	0
Selection Silvicultural System - Selection Harvest (uneven-aged)		0	0		0	0		0
Strip Cut		160	210		13	0		0
Seed Tree Cut		39	130		0	9	165	0
Uniform Shelterwood Seed Cut		0	5		0	0		0
Artificial Regeneration								
Planting		906	2760		1170	2917	3433	2387
Seeding (with SIP)		2470	1440		1297	1057	1274	1004
Scarification		52	400		15	10	30	22
Shelter Cones		0	0		41	0	0	0
Total Renewal	0	3897	6516	0	2827	4496	6384	5327
Site Preparation (mechanical, chemical, prescribed burn)								
Mechanical		3312	4370		2416	3628	2922	2926
Chemical		0	300		0	94	116	0
Prescribed Burn		0	0		0	0	330	108
Total Site Preparation	0	3312	4670	0	2416	3722	3368	3035
Tending								
Cleaning								
- manual						0	24	0
- ground		0	200		0	121	45	21
- aerial		554	800		0	1198	1779	927
- mechanical							28	
Spacing, Pre-Commercial Thinning, Improvement Cutting								
Clearcut and Shelterwood Silvicultural Systems (even-aged)		1510	1600		0	363	541	235
Selection Silvicultural System (uneven-aged)		0	0		0	0		
Total Tending	0	2064	2600	0	0	1683	2417	1183
Protection (Insect Pest Control)								37,390

Annualized AR-7
Trend Analysis table 6
FMP-21

MANAGEMENT UNIT NAME: Wabigoon Forest
PLAN PERIOD: April 1, 2003 TO March 31, 2008

AR-10: Summary of Harvest and Regeneration Trends

		Term						
Forest Unit		1988-1993	1993-1998	1998-2003	2003 to 2008	<year> to <year>	<year> to <year>	<year> to <year>
BwDom	Harvest/Salvage (ha)			345.94	43.77			
	Surveyed (ha)			79.58	4.90			
	Regenerated (ha)			79.58	4.90			
	Unavailable for Regeneration (ha)			13.84	1.75			
	Un-surveyed (ha)			252.52	37.12			
	Percent FU Successfully Regenerated			24%	12%			
CcDry (OC)	Harvest/Salvage (ha)			7.13	7.06			
	Surveyed (ha)			0.00	0.00			
	Regenerated (ha)			0.00	0.00			
	Unavailable for Regeneration (ha)			0.29	0.28			
	Un-surveyed (ha)			6.84	6.78			
	Percent FU Successfully Regenerated			0%	0%			
MxCon (BF)	Harvest/Salvage (ha)			2050.08	2732.44			
	Surveyed (ha)			472.75	26.10			
	Regenerated (ha)			472.75	26.10			
	Unavailable for Regeneration (ha)			82.00	109.30			
	Un-surveyed (ha)			1495.33	2597.04			
	Percent FU Successfully Regenerated			24%	1%			
MxHwd (OH)	Harvest/Salvage (ha)			1247.31	5962.41			
	Surveyed (ha)			1163.31	57.80			
	Regenerated (ha)			1163.31	57.80			
	Unavailable for Regeneration (ha)			49.89	238.50			
	Un-surveyed (ha)			34.11	5666.11			
	Percent FU Successfully Regenerated			97%	1%			
OCLow (OC)	Harvest/Salvage (ha)			1416.83	21.02			
	Surveyed (ha)			422.48	3.60			
	Regenerated (ha)			422.48	3.60			
	Unavailable for Regeneration (ha)			56.67	0.84			
	Un-surveyed (ha)			937.68	16.58			
	Percent FU Successfully Regenerated			31%	18%			
PJMix (PJ3)	Harvest/Salvage (ha)			5295.50	4917.32			
	Surveyed (ha)			1890.70	762.40			
	Regenerated (ha)			1890.70	762.40			
	Unavailable for Regeneration (ha)			211.82	196.69			
	Un-surveyed (ha)			3192.98	3958.23			
	Percent FU Successfully Regenerated			37%	16%			
PjPrd (Pj2)	Harvest/Salvage (ha)			3025.66	3057.78			
	Surveyed (ha)			895.41	3390.50			
	Regenerated (ha)			895.41	3390.50			
	Unavailable for Regeneration (ha)			121.03	122.31			
	Un-surveyed (ha)			2009.22	-455.03			
	Percent FU Successfully Regenerated			31%	116%			
	Harvest/Salvage (ha)			903.41	1341.84			

PoAll (Po2)	Surveyed (ha)			262.26	314.50			
	Regenerated (ha)			262.26	314.50			
	Unavailable for Regeneration (ha)			36.14	53.67			
	Un-surveyed (ha)			605.01	973.67			
	Percent Successfully Regenerated			30%	24%			
PwrMx (Pr)	Harvest/Salvage (ha)			2.46	13.15			
	Surveyed (ha)			0.00	40.20			
	Regenerated (ha)			0.00	40.20			
	Unavailable for Regeneration (ha)			0.10	0.53			
	Un-surveyed (ha)			2.36	27.58			
	Percent Successfully Regenerated			0%	318%			
PwDom (Pw)	Harvest/Salvage (ha)			0.00	0.10			
	Surveyed (ha)			0.00	43.60			
	Regenerated (ha)			0.00	43.60			
	Unavailable for Regeneration (ha)			0.00	0.00			
	Un-surveyed (ha)			0.00	43.50			
	Percent Successfully Regenerated			0%	45417%			
SbLow (Sp3)	Harvest/Salvage (ha)			802.45	1146.43			
	Surveyed (ha)			296.97	71.90			
	Regenerated (ha)			296.97	71.90			
	Unavailable for Regeneration (ha)			32.10	45.86			
	Un-surveyed (ha)			473.38	1028.67			
	Percent Successfully Regenerated			39%	7%			
SbMix (Sp1)	Harvest/Salvage (ha)			4901.12	4731.43			
	Surveyed (ha)			1411.03	434.50			
	Regenerated (ha)			1411.03	434.50			
	Unavailable for Regeneration (ha)			196.04	189.26			
	Un-surveyed (ha)			3294.05	4107.67			
	Percent Successfully Regenerated			30%	10%			
SbPrd (Sp1)	Harvest/Salvage (ha)			3356.82	4779.08			
	Surveyed (ha)			1104.65	1110.30			
	Regenerated (ha)			1104.65	1110.30			
	Unavailable for Regeneration (ha)			134.27	191.16			
	Un-surveyed (ha)			2117.90	3477.62			
	Percent Successfully Regenerated			34%	24%			
ShAll (Pj3)	Harvest/Salvage (ha)			482.47	1688.40			
	Surveyed (ha)			73.23	231.40			
	Regenerated (ha)			73.23	231.40			
	Unavailable for Regeneration (ha)			19.30	67.54			
	Un-surveyed (ha)			389.94	1389.46			
	Percent Successfully Regenerated			16%	14%			
Total	Harvest/Salvage (ha)			23837.18	30442.23			
	Surveyed (ha)			8072.37	6491.70			
	Regenerated (ha)			8072.37	6491.70			
	Unavailable for Regeneration (ha)			953.49	1217.69			
	Un-surveyed (ha)			14811.32	22732.84			
TOTAL	Percent Successfully Regenerated			35%	22%			

Summary	1998-2003	2003 to 2008
BwDom	24%	12%

CeDry	0%	0%
MxCon	24%	1%
MxHwd	97%	1%
OCLow	31%	18%
PJMix	37%	16%
PjPrd	31%	116%
PoAll	30%	24%
PwrMx	0%	318%
PwDom	0%	45417%
SbLow	39%	7%
SbMix	30%	10%
SbPrd	34%	24%
ShAll	16%	14%

Source	**For 2003-2008**	1998-2003
	2007/08 AR-16 Harvest	1998-2003 Inventory populated with the 2003 FU
	2007/08 AR-14 Renewal	
	2002/03 AR-7	
	4 % used for unavailable	
Comments	Not all AR tables had the same format so figures were not available, Forest Units changed between plans	

MANAGEMENT UNIT NAME: Wabigoon Forest
PLAN PERIOD: April 1, 2003 TO March 31, 2008

AR-11: Summary of Forest Condition for the Available Managed Crown Productive Forest

Forest Unit	Age/Condition Class	Area (ha)							
		Past Plans				Current Plan 2003			
								Projections	
				1993-1998	1998-2003	Plan Start 2003	Plan End 2008 (2008-2018- FMP4)	Medium-Term 2023	Long-Term 2103
BwDom	Depleted								
	Below Regen Standard			435	177	62		62	62
	0-20			836	397	58	435	1,123	1,122
WG-Bw/93	21-40			2,033	2,136	170	181	258	790
Bw1/98	41-60			3,641	2,122	695	584	130	680
	61-80			8,437	8,168	1,278	1,486	549	422
	81-100			3,356	3,867	551	629	907	0
	101-120			901	1,006	78	241	458	144
	121-140			294	278	10		0	0
	141-160				99			9	23
	161-180								
	181-200								
	201+								
Forest Unit Subtotal			0	19,933	18,250	2,902	3,556	3,495	3,242
CeDry	Depleted								
	Below Regen Standard			366	136	18		18	18
WG -	0-20			0	0	2	20	830	285
cedar/93	21-40			37	40	121	8	3	1,105
OC1	41-60			138	120	256	86	114	355
	61-80			718	272	818	896	242	961
	81-100			1,572	1143	1730	2,223	817	731
	101-120			2,146	2478	624	1,071	1,597	8
	121-140			3,278	1,752	375	427	249	0
	141-160				1822	378	223	250	51
	161-180						254		
	181-200								
	201+								
Forest Unit Subtotal			0	8,255	7,763	4,322	5,208	4,119	3,514
MxCon	Depleted								
	Below Regen Standard			729	274			0	0
	0-20			174	27	2,894	13,689	13,223	5,119
Bf/93	21-40			11,644	5,333	10,161	17,006	2,882	5,312
Bf1-98	41-60			39,979	33,975	7,535	17,881	9,564	5,639
	61-80			5,604	14,168	9,816	19,959	3,496	6,001
	81-100			486	477	6,424	22,185	2,774	276
	101-120			191	133	2,464	7,706	1,553	0
	121-140					747	2,139	298	0
	141-160					42	133	101	0
	161-180						107.8		
	181-200								
	201+								
Forest Unit Subtotal			0	58,807	54,387	40,083	100,804	33,893	22,347

MxHwd	Depleted								
	Below Regen Standard			0				0	0
ashmaple/93	0-20			0		1,923	13,387	18,694	7,253
	21-40			0		13895	11,063	2,986	7,968
	41-60			75	27	18271	25,359	12,344	7,636
	61-80			221	190	22158	27,706	17,171	8,779
	81-100			40	111	5,246	10,957	2,508	3,830
	101-120			77	83	2,760	4,014	521	1,740
	121-140			8		741	1,200	54	113
	141-160				8	78	54	82	22
	161-180								
	181-200								
	201+								
	Forest Unit Subtotal		0	421	419	65,072	93,740	54,360	37,342
OcLow	Depleted								
	Below Regen Standard			0		199		199	199
	0-20			0		360	297.6	826	1,165
ta/93	21-40			0		760	46.1	341	1,616
	41-60					557	325.2	723	948
	61-80			95		1448	1329.1	619	3,059
	81-100			26		2615	3154.7	1,425	364
	101-120			262		1085	1331.4	2,389	0
	121-140			43		575	739.5	970	0
	141-160					219	246	623	74
	161-180						78.4		
	181-200								
	201+								
	Forest Unit Subtotal		0	426		7818	7548	8113.694864	7425.659061
PjMix	Depleted								
	Below Regen Standard			32,851	3,985			0	0
	0-20			42,823	11,322	12853	6765.5	14,066	12,156
jackpine/93	21-40			22,926	3,719	15628	13758.4	12,271	13,078
pj2/93	41-60			11,325	2,141	4083	4366	14,694	14,133
	61-80			54,008	20,282	13852	6703.7	3,913	13,627
	81-100			23,452	18,594	8269	10890.1	6,988	0
	101-120			7,580	4,486	2263	2594.2	1,494	0
	121-140			3,728	1,734	953	707.1	172	0
	141-160				240	12	43.6	105	0
	161-180						12.3		
	181-200								
	201+								
	Forest Unit Subtotal		0	198,693	66,503	57,913	45,841	53,703	52,994
PjPrd	Depleted								
	Below Regen Standard				202	127		127	127
	0-20				14,892	35,152	34,437	25,205	27,942
pj2/93	21-40				49,543	15,198	21,569	33,280	29,050
	41-60				3,669	2,261	3,682	14,389	35,291
	61-80				13,608	6,904	5,754	1,588	10,857
	81-100				14,595	5,873	7,911	1,139	102
	101-120				4,516	652	1,257	397	930
	121-140				2,877	108	138	106	0
	141-160				201			19	21
	161-180								
	181-200								
	201+								

Forest Unit Subtotal						66,275	74,747	76,252	104,321
PoAll	Depleted								
	Below Regen Standard			3,519	1,630	134		134	134
	0-20			10,612	5,465	2,173	5,141	10,942	7,534
poplar/93	21-40			16,719	23,738	1,892	1,442	2,351	9,132
	41-60			8,582	5,741	2,205	2,771	1,690	8,664
	61-80			12,247	11,952	3,780	3,142	1,940	1,756
	81-100			12,634	10,411	1,408	1,448	1,774	0
	101-120			7,684	8,128	633	779	42	324
	121-140			1,023	1,798	267	174	4	64
	141-160				-	4	25	13	81
	161-180								
	181-200								
	201+								
Forest Unit Subtotal				73,020		12,496	14,921	18,889	27,687
PrwMx	Depleted								
	Below Regen Standard			32	-			0	0
	0-20			14	438	570	719	701	2,251
pr/93	21-40			0	27	30	80	540	683
	41-60			5	162	49	14	9	116
	61-80			10	552	210	100	1	0
	81-100			179	587	265	124	142	0
	101-120			204	724	151	207	25	0
	121-140			133	336	10	20	35	0
	141-160				127	15		12	0
	161-180						18		
	181-200								
	201+								
Forest Unit Subtotal				577	2,953	1,300	1,282	1,465	3,051
PwDom	Depleted					128			
	Below Regen Standard			49	1	0		0	0
	0-20			0	8	0	135	582	1,929
pw/93	21-40			0	-	19		121	778
	41-60			0	414	128	48	0	184
	61-80			85	370	210	140	0	0
	81-100			234	1,178	101	269	19	0
	101-120			9	439	64	473	125	53
	121-140			381	85		189	215	26
	141-160				335		51	135	58
	161-180						60		
	181-200								
	201+								
	Forest Unit Subtotal			758		650	1,364	1,198	3,028
SbLow	Depleted								
	Below Regen Standard			15,013	742	2,122		2,122	2,122
black	0-20			4,960	210	941	5,501	7,590	6,857
spruce/93	21-40			15,485	120	1,399	1,477	1,120	5,122
	41-60			17,016	68	2,309	3,127	1,209	5,591
	61-80			42,674	433	6,540	5,413	2,073	7,433
	81-100			31,533	1,327	8,985	10,285	7,440	2,631
	101-120			20,238	1,750	7,042	8,368	5,306	412
	121-140			13,421	2,550	3,484	3,927	3,001	0
	141-160				1,381	1,664	1,660	3,525	1,182
	161-180						350		
	181-200								

	201+								
	Forest Unit Subtotal			160,340	8,581	34,486	40,107	33,387	31,349
SbMix	Depleted								
	Below Regen Standard				6,553	19		19	19
spruce	0-20				1,852	3,803	4,048	13,694	11,975
all/93	21-40				13,038	6,101	2,642	4,463	12,446
	41-60				18,758	17,424	7,643	5,147	8,421
	61-80				30,848	26,869	8,686	17,963	8,518
	81-100				36,883	20,342	14,098	26,649	0
	101-120				20,157	5,396	3,887	6,848	0
	121-140				8,994	1,597	882	2,047	0
	141-160				3,473	362	199	1,073	0
	161-180						100		
	181-200								
	201+								
	Forest Unit Subtotal				140,556	81,913	42,185	77,902	41,379
SbPrd	Depleted								
wh spruce/9	Below Regen Standard			64		524		524	524
	0-20			0		7496	14,368	23,863	23,721
	21-40			258		1015	1,113	7,097	17,982
	41-60			696		4631	4,374	961	11,759
	61-80			321		11319	7,764	2,927	6,713
	81-100			263		11692	13,402	3,152	0
	101-120			206		2361	3,192	2,993	0
	121-140					948	902	648	0
	141-160					160	291	305	87
	161-180						29		
	181-200								
	201+								
	Forest Unit Subtotal			1,808		40,146	45,435	42,469	60,787
ShAll	Depleted				0				
	Below Regen Standard					635		635	635
	0-20					5227	5,940	10,324	15,895
	21-40					17830	20,972	4,948	10,833
	41-60					3478	5,126	16,955	9,592
	61-80					5484	4,588	1,581	0
	81-100					4198	4,166	1,442	0
	101-120					1911	2,226	890	0
	121-140					421	935	1,735	0
	141-160					16	136	242	0
	161-180								
	181-200								
	201+								
	Forest Unit Subtotal					39200	44088.1	38751.7	36954.5
	Total			523,038		454,576	520,826	447,997	435,420

2003-2008-FMP9

1991 was not available

RPFO Table 5

2003 SFMM Long out put report

for medium and longterm projections

93-98 tmpta49 FMP 11

2008 FMP-4 For plant end (used 2008-2018 FMP-4)

The comparable strategic planning sub-totals for this table considering the reclassification of LOWNAT area for SFMM modelling are:

Protection Forest - 4531ha.

Unavailable - 12558 ha. (includes LOWNAT areas)

Available - 513603.5 ha. (matches FMP-1a reconciliation of SFMM landbase).

MANAGEMENT UNIT NAME: Wabigoon Forest
PLAN PERIOD: April 1, 2003 TO March 31, 2008

AR-12: Summary of Habitat for Species at Risk and Selected Wildlife Species

	Area of Habitat (ha)							
	Past Plans			Current Plan 2003-2008				
				Plan Start	Projections			Plan End
Wildlife Species	1991	1996	1998	2003	Short-Term 2013	Medium-Term 2023	Long-Term 2103	2008
American Kestrel				2600	7200	8,587	3,946	
Spruce Grouse			120,129	86400	84000	83,547	108,661	
Great Grey Owl			835,000	82500	76200	65,354	57,520	152100
Pileated Woodpecker			22,450	20700	19500	20,711	13,924	9400
Boreal Chickadee				71700	68400	62,172	48,336	
Golden-crowned Kinglet				107400	99100	88,147	61,990	
Swainson's Thrush				93700	80700	78,638	69,492	
American Redstart				78900	65600	61,773	58,496	
Connecticut Warbler				37100	38900	40,754	41,501	
Wh.-throated Sparrow				126600	161100	183,449	168,115	
Snowshoe Hare				47400	59000	72,571	46,033	
North. Flying Squirrel				168300	155000	135,863	104,444	
Boreal Red-backed Vole				132300	125400	112,770	78,003	
Marten			202,638	184100	170400	148,918	113,172	159600
Woodland Caribou				174900	169900	164,343	189,446	80000
Woodland Caribou (winter)				26500	25300	24,300	19,826	345500
White-tailed Deer (foraging)				65400	84000	97,105	65,571	
White-tailed Deer (winter)				86500	83800	88,495	51,973	48700
Moose - foraging			0	148600	147700	148,637	136,290	159100
Moose - winter			36,500	271000	251200	247,852	265,275	280900

2003 FMP Appendix 9G Basic results for wildlife habitat Not used

1998 FMP -5 & 12

SMA97 - Wabigoon 2003-2008

2008 FMP-8 or RPFO-16 SFMM 106 PMS 2008-2018

2003- FMP5

MANAGEMENT UNIT NAME:Wabigoon Forest
PLAN PERIOD: April 1, 2003 TO March 31, 2008

AR-13: Summary of Assessment of Regeneration and Silvicultural Success

			Area Assessed				
			Area Successfully Regenerated			Area Not Successfully Regenerated	Total Area Assessed
Forest Unit	Silvicultural Ground Rule		Projected Forest Unit	Other Forest Unit	Total		
Harvest							
BwDom	2.1	BwDom	0.0	0.0	0.0	0.0	0.0
BwDom	2.2	BwDom	0.0	0.0	0.0	0.0	0.0
BwDom	2.3	MxCon	0.0	0.0	0.0	0.0	0.0
BwDom	2.4	PjMix	0.0	0.0	0.0	0.0	0.0
BwDom	2.5	PjPrd	0.0	0.0	0.0	0.0	0.0
BwDom	2.6	PwDom	0.0	0.0	0.0	0.0	0.0
BwDom	2.7	PrwMx	0.0	0.0	0.0	0.0	0.0
BwDom	*	SbLow	4.9	0.0	4.9	0.0	4.9
Forest Unit Subtotal			**4.9**	**0.0**	**4.9**	**0.0**	**4.9**
CeDry	3.1	CeDry	0.0	0.0	0.0	0.0	0.0
CeDry	3.2	CeDry	0.0	0.0	0.0	0.0	0.0
CeDry	3.3	CeDry	0.0	0.0	0.0	0.0	0.0
CeDry	3.4	MxCon	0.0	0.0	0.0	0.0	0.0
CeDry	3.5	PwDom	0.0	0.0	0.0	0.0	0.0
CeDry	3.6	PrwMx	0.0	0.0	0.0	0.0	0.0
Forest Unit Subtotal			**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

MxCon	4.1	MxCon	3.3	18.3	21.6	0.0	21.6
MxCon	4.2	MxCon	0.0	0.0	0.0	0.0	0.0
MxCon	4.3	MxCon	0.0	0.0	0.0	0.0	0.0
MxCon	4.4	MxHwd	0.0	2.0	2.0	0.0	2.0
MxCon	4.5	SbMix	0.0	0.0	0.0	0.0	0.0
MxCon	4.6	SbPrd	0.0	0.0	0.0	0.0	0.0
MxCon	4.7	PjMix	0.0	0.0	0.0	0.0	0.0
MxCon	4.8	PjPrd	0.0	0.0	0.0	0.0	0.0
MxCon	4.9	SbPrd	0.0	0.0	0.0	0.0	0.0
MxCon	4.10	PjPrd	0.0	0.0	0.0	0.0	0.0
MxCon	4.11	SbMix	1.0	0.0	1.0	0.0	1.0
MxCon	4.12	PjMix	1.3	0.0	1.3	0.0	1.3
MxCon	4.13	MxCon	0.2	0.0	0.2	0.0	0.2
MxCon	4.14	PrwMx	0.0	0.0	0.0	0.0	0.0
MxCon	4.15	PwDom	0.0	0.0	0.0	0.0	0.0
Forest Unit Subtotal			**5.8**	**20.3**	**26.1**	**0.0**	**26.1**
MxHwd	5.1	SbMix	0.0	0.0	0.0	0.0	0.0
MxHwd	5.2	PoAll	0.0	0.0	0.0	0.0	0.0
MxHwd	5.3	PoAll	0.0	0.0	0.0	0.0	0.0
MxHwd	5.4	PjMix	6.6	0.0	6.6	0.0	6.6
MxHwd	5.5	MxHwd	1.4	2.2	3.6	0.0	3.6
MxHwd	5.6	PoAll	0.0	0.0	0.0	0.0	0.0
MxHwd	5.7	SbPrd	7.0	0.0	7.0	0.0	7.0
MxHwd	5.8	PjPrd	1.1	0.0	1.1	0.0	1.1
MxHwd	5.9	MxHwd	7.5	24.3	31.8	0.0	31.8
MxHwd	5.10	MxCon	0.4	0.0	0.4	0.0	0.4
MxHwd	5.11	PjMix	0.0	0.0	0.0	0.0	0.0
MxHwd	5.12	SbMix	7.3	0.0	7.3	0.0	7.3
MxHwd	5.13	PrwMx	0.0	0.0	0.0	0.0	0.0
MxHwd	5.14	PwDom	0.0	0.0	0.0	0.0	0.0
Forest Unit Subtotal			**31.3**	**26.5**	**57.8**	**0.0**	**57.8**
OCLow	6.1	OCLow	0.0	0.0	0.0	0.0	0.0
OCLow	6.2	SbLow	0.0	0.0	0.0	0.0	0.0

OCLow	6.3	SbLow	2.1	0.0	2.1	0.0	2.1
OCLow	6.4	CcDry	0.0	0.0	0.0	0.0	0.0
OCLow	6.5	SbLow	0.0	0.0	0.0	0.0	0.0
OCLow	*	PjPrd	0.5	0.0	0.5	0.0	0.5
OCLow	*	SbLow	1.0	0.0	1.0	0.0	1.0
Forest Unit Subtotal			**3.6**	**0.0**	**3.6**	**0.0**	**3.6**
PjMix	7.1	PjPrd	24.4	0.0	24.4	0.0	24.4
PjMix	7.2	SbPrd	3.3	0.0	3.3	0.0	3.3
PjMix	7.3	PjMix	243.2	0.0	243.2	0.0	243.2
PjMix	7.4	SbMix	29.9	0.0	29.9	0.0	29.9
PjMix	7.5	PjMix	7.6	18.7	26.3	0.0	26.3
PjMix	7.6	PjPrd	214.0	0.0	214.0	0.0	214.0
PjMix	7.7	MxHwd	0.0	0.0	0.0	0.0	0.0
PjMix	7.8	SbMix	10.7	0.0	10.7	0.0	10.7
PjMix	7.9	PrwMx	0.0	0.0	0.0	0.0	0.0
PjMix	7.10	PwDom	8.5	0.0	8.5	0.0	8.5
PjMix	7.11	MxCon	17.3	0.0	17.3	0.0	17.3
PjMix	7.12	PoAll	0.0	0.0	0.0	0.0	0.0
PjMix	7.13	MxCon	123.6	0.0	123.6	0.0	123.6
PjMix	7.14	PjPrd	0.0	0.0	0.0	0.0	0.0
PjMix	7.15	PjMix	17.7	0.0	17.7	0.0	17.7
PjMix	7.16	SbMix	38.7	0.0	38.7	0.0	38.7
PjMix	7.17	MxCon	0.0	0.0	0.0	0.0	0.0
PjMix	7.18	PjMix	0.0	3.3	3.3	0.0	3.3
PjMix	7.19	MxCon	0.0	0.0	0.0	0.0	0.0
PjMix	7.20	MxCon	0.0	0.0	0.0	0.0	0.0
PjMix	*	SbLow	1.5	0.0	1.5	0.0	1.5
Forest Unit Subtotal			**740.4**	**22.0**	**762.4**	**0.0**	**762.4**
PjPrd	8.1	PjPrd	261.2	0.0	261.2	0.0	261.2
PjPrd	8.2	PjPrd	322.9	0.0	322.9	0.0	322.9
PjPrd	8.3	PjPrd	1306.8	15.9	1322.7	0.0	1,322.7
PjPrd	8.4	PjMix	371.2	0.0	371.2	0.0	371.2
PjPrd	8.5	PjMix	394.3	0.0	394.3	0.0	394.3
PjPrd	8.6	MxCon	211.1	0.0	211.1	0.0	211.1

PjPrd	8.7	PjPrd	82.3	0.0	82.3	0.0	82.3
PjPrd	8.8	PjMix	37.7	0.0	37.7	0.0	37.7
PjPrd	8.9	PrwMx	0.3	0.0	0.3	0.0	0.3
PjPrd	8.10	PwDom	0.0	0.0	0.0	0.0	0.0
PjPrd	8.11	MxCon	51.3	0.0	51.3	0.0	51.3
PjPrd	8.12	PoAll	29.9	0.0	29.9	0.0	29.9
PjPrd	8.13	MxCon	0.0	0.0	0.0	0.0	0.0
PjPrd	8.14	MxCon	4.7	0.0	4.7	0.0	4.7
PjPrd	8.15	MxCon	0.0	0.0	0.0	0.0	0.0
PjPrd	*	MxHwd	53.7	0.0	53.7	0.0	53.7
PjPrd	*	SbPrd	79.4	0.0	79.4	0.0	79.4
PjPrd	*	SbMix	106.0	0.0	106.0	0.0	106.0
PjPrd	*	SbLow	61.8	0.0	61.8	0.0	61.8
Forest Unit Subtotal			**3,374.6**	**15.9**	**3,390.5**	**0.0**	**3,390.5**
PoAll	9.1	PoAll	0.0	0.0	0.0	0.0	0.0
PoAll	9.2	PoAll	0.0	0.0	0.0	0.0	0.0
PoAll	9.3	PoAll	91.7	0.0	91.7	0.0	91.7
PoAll	9.4	MxHwd	95.5	0.0	95.5	0.0	95.5
PoAll	9.5	MxCon	63.7	0.0	63.7	0.0	63.7
PoAll	9.6	PrwMx	0.0	0.0	0.0	0.0	0.0
PoAll	9.7	PwDom	0.0	0.0	0.0	0.0	0.0
PoAll	*	PjMix	42.1	0.0	42.1	0.0	42.1
PoAll	*	PjPrd	1.6	0.0	1.6	0.0	1.6
PoAll	*	SbMix	19.9	0.0	19.9	0.0	19.9
Forest Unit Subtotal			**314.5**	**0.0**	**314.5**	**0.0**	**314.5**
PrwMx	10.1	PrwMx	20.1	0.0	20.1	0.0	20.1
PrwMx	10.2	PrwMx	0.0	0.0	0.0	0.0	0.0
PrwMx	10.3	PwDom	0.0	0.0	0.0	0.0	0.0
PrwMx	10.4	PjMix	0.0	0.0	0.0	0.0	0.0
PrwMx	10.5	MxCon	4.0	0.0	4.0	0.0	4.0
PrwMx	10.6	PjMix	0.0	0.0	0.0	0.0	0.0
PrwMx	10.7	MxCon	0.0	0.0	0.0	0.0	0.0
PrwMx	10.8	PrwMx	0.0	0.0	0.0	0.0	0.0
PrwMx	10.9	PwDom	0.0	0.0	0.0	0.0	0.0

PrwMx	*	PjPrd	16.1	0.0	16.1	0.0	16.1
Forest Unit Subtotal			**40.2**	**0.0**	**40.2**	**0.0**	**40.2**
PwDom	11.1	PwDom	0.0	0.0	0.0	0.0	0.0
PwDom	11.2	PrwMx	0.0	41.1	41.1	0.0	41.1
PwDom	11.3	MxCon	0.0	0.0	0.0	0.0	0.0
PwDom	11.4	MxCon	0.0	0.0	0.0	0.0	0.0
PwDom	11.5	PwDom	0.0	0.0	0.0	0.0	0.0
PwDom	11.6	PrwMx	0.0	2.5	2.5	0.0	2.5
PwDom	11.7	PrwMx	0.0	0.0	0.0	0.0	0.0

PwDom	11.8	PwDom	0.0	0.0	0.0	0.0	0.0
Forest Unit Subtotal			**0.0**	**43.6**	**43.6**	**0.0**	**43.6**
SbLow	12.1	SbLow	0.0	0.0	0.0	0.0	0.0
SbLow	12.2	SbLow	9.2	0.0	9.2	0.0	9.2
SbLow	12.3	SbLow	36.4	0.0	36.4	0.0	36.4
SbLow	12.4	OCLow	6.5	0.0	6.5	0.0	6.5
SbLow	*	PjPrd	10.9	0.0	10.9	0.0	10.9
SbLow	*	SbPrd	8.1	0.0	8.1	0.0	8.1
SbLow	*	SbMix	0.8	0.0	0.8	0.0	0.8
Forest Unit Subtotal			**71.9**	**0.0**	**71.9**	**0.0**	**71.9**
SbMix	13.1	SbPrd	4.0	0.0	4.0	0.0	4.0
SbMix	13.2	SbMix	78.1	0.0	78.1	0.0	78.1
SbMix	13.3	PjMix	66.9	0.0	66.9	0.0	66.9
SbMix	13.4	PjPrd	69.5	0.0	69.5	0.0	69.5
SbMix	13.5	SbPrd	4.3	0.0	4.3	0.0	4.3
SbMix	13.6	SbMix	4.2	0.0	4.2	0.0	4.2
SbMix	13.7	SbPrd	0.0	0.0	0.0	0.0	0.0
SbMix	13.8	PjMix	0.0	0.0	0.0	0.0	0.0
SbMix	13.9	PrwMx	4.3	0.0	4.3	0.0	4.3
SbMix	13.10	PwDom	0.0	0.0	0.0	0.0	0.0
SbMix	13.11	PrwMx	0.0	0.0	0.0	0.0	0.0
SbMix	13.12	MxCon	74.3	0.0	74.3	0.0	74.3
SbMix	13.13	SbMix	126.8	0.0	126.8	0.0	126.8
SbMix	13.14	MxCon	0.0	0.0	0.0	0.0	0.0
SbMix	13.15	SbMix	0.4	0.0	0.4	0.0	0.4
SbMix	13.16	SbMix	0.0	0.0	0.0	0.0	0.0
SbMix	13.17	SbMix	0.0	0.0	0.0	0.0	0.0
SbMix	13.18	SbMix	0.0	0.0	0.0	0.0	0.0
SbMix	*	SbLow	1.7	0.0	1.7	0.0	1.7
Forest Unit Subtotal			**434.5**	**0.0**	**434.5**	**0.0**	**434.5**
SbPrd	14.1	SbPrd	17.4	0.0	17.4	0.0	17.4
SbPrd	14.2	SbPrd	93.9	0.0	93.9	0.0	93.9
SbPrd	14.3	SbMix	213.7	0.0	213.7	0.0	213.7

SbPrd	14.4	PjMix	348.9	0.0	348.9	0.0	348.9
SbPrd	14.5	SbPrd	64.7	10.4	75.1	0.0	75.1
SbPrd	14.6	SbMix	20.0	0.0	20.0	0.0	20.0
SbPrd	14.7	PjMix	23.9	0.0	23.9	0.0	23.9
SbPrd	14.8	PrwMx	0.0	0.0	0.0	0.0	0.0
SbPrd	14.9	PwDom	0.0	0.0	0.0	0.0	0.0
SbPrd	14.10	PrwMx	0.0	0.0	0.0	0.0	0.0
SbPrd	14.11	MxCon	65.5	0.0	65.5	0.0	65.5
SbPrd	14.12	SbMix	100.0	0.0	100.0	0.0	100.0
SbPrd	14.13	MxCon	33.1	0.0	33.1	0.0	33.1
SbPrd	14.14	SbMix	0.0	0.0	0.0	0.0	0.0
SbPrd	14.15	SbMix	0.0	0.0	0.0	0.0	0.0
SbPrd	14.16	SbMix	0.0	0.0	0.0	0.0	0.0
SbPrd	14.17	SbMix	0.0	0.0	0.0	0.0	0.0
SbPrd	*	PjPrd	25.8	0.0	25.8	0.0	25.8
SbPrd	*	SbMix	3.4	0.0	3.4	0.0	3.4
SbPrd	*	MxHwd	33.9	0.0	33.9	0.0	33.9
SbPrd	*	PoAll	3.8	0.0	3.8	0.0	3.8
SbPrd	*	SbLow	51.9	0.0	51.9	0.0	51.9
Forest Unit Subtotal			**1,099.9**	**10.4**	**1,110.3**	**0.0**	**1,110.3**
ShAll	15.1	ShaAll	0.0	0.0	0.0	0.0	0.0
ShAll	15.2	ShaAll	0.0	0.0	0.0	0.0	0.0
ShAll	15.3	ShaAll	0.0	0.0	0.0	0.0	0.0
ShAll	15.4	ShaAll	0.0	0.0	0.0	0.0	0.0
ShAll	*	PjMix	159.7	9.5	169.2	0.0	169.2
ShAll	*	PjPrd	57.6	0.0	57.6	0.0	57.6
ShAll	*	SbMix	1.6	0.0	1.6	0.0	1.6
ShAll	*	SbLow	3.0	0.0	3.0	0.0	3.0
Forest Unit Subtotal			**221.9**	**9.5**	**231.4**	**0.0**	**231.4**
N/A	N/A	BwDom	0.0	0.0	0.0	0.0	0.0
N/A	N/A	CcDry	0.0	0.0	0.0	0.0	0.0
N/A	N/A	MxCon	0.0	0.0	8.1	8.1	8.1
N/A	N/A	MxHwd	0.0	0.0	1.5	1.5	1.5
N/A	N/A	OCLow	0.0	0.0	0.0	0.0	0.0

N/A	N/A	PjMix	0.0	0.0	65.7	65.7	65.7
N/A	N/A	PjPrd	0.0	0.0	59.7	59.7	59.7
N/A	N/A	PoAll	0.0	0.0	1.5	1.5	1.5
N/A	N/A	PrwMx	0.0	0.0	2.3	2.3	2.3
N/A	N/A	PwDom	0.0	0.0	0.0	0.0	0.0
N/A	N/A	SbLow	0.0	0.0	4.3	4.3	4.3
N/A	N/A	SbMix	0.0	0.0	4.5	4.5	4.5
N/A	N/A	SbPrd	0.0	0.0	2.9	2.9	2.9
N/A	N/A	ShAll	0.0	0.0	0.0	0.0	0.0
Forest Unit Subtotal			**0.0**	**0.0**	**150.5**		**150.5**
	Harvest Subtotal		**6,343.5**	**148.2**	**6,642.2**	**0.0**	**6,642.2**
Natural Disturbance							
PjPrd	1.1	PjPrd	0	0	0	0	25.3
	Forest Unit Subtotal		0	0	0	0	25.3
	Disturbance Subtotal		0	0	0	0	25.3
Total (Both Harvest and Natural Disturbance)			**6,343.5**	**148.2**	**6,642.2**	**0.0**	**6,667.5**

MANAGEMENT UNIT NAME:Wabigoon Forest
PLAN PERIOD: April 1, 2003 TO March 31, 2008

AR-14: Assessment of Objective Achievement

Management Objective	Indicator	Plan Start Level	Desirable Level (BNV)		Timing of Assessment				Target	Assessment
Quantitative Objectives			Minimum	Max						
1. Forest Diversity - Age Class Structure and Forest Composition										
Productive Land Base: (by forest unit and age class grouping)(ha at start of each 20-year period)										
BwDom		**2003**				**2008 FMP**				Within the bounds of natural variation FMP7 in the 2008 FMP has adjusted age classes to match onset of Old Growth
B & S	ha	62	50.0	73.0	Lownat	240				
1 - 50 years	ha	770	617.0	6,993.0	1 - 60 years	1,163				
51-100 years	ha	2,710	275.0	3,252.0	61 - 100 years	2,299				
over 100 years	ha	123	98.0	1,104.0	over 100 years	267				
Total	ha	3,665	1,040	11,422	Sub-Total	3,969				PPdan FU has been eliminated
CeDry										other FU definitions have changed slightly
B & S	ha	18	15.0	21.0	Lownat	18				overall met or exceeded BNV ranges
1 - 50 years	ha	275	221.0	2,488.0	1 - 60 years	111				
51-100 years	ha	3,961	294.0	4,753.0	61 - 100 years	3,614				
over 100 years	ha	1,976	1,581.0	4,723.0	over 100 years	2,102				
Total	ha	6,230	2,111	11,985	Sub-Total	5,845				
MxCon										
B & S	ha	0	1.0	-1.0	Lownat					
1 - 50 years	ha	18,495	14,797.0	37,566.0	1 - 60 years	50,195				
51-100 years	ha	25,944	7,078.0	31,132.0	61 - 100 years	46,331				
over 100 years	ha	4,752	3,339.0	13,369.0	over 100 years	11,468				
Total	ha	49,191	25,215	82,066	Sub-Total	107,994				
MxHwd										
B & S	ha	0	1.0	-1.0	Lownat					
1 - 50 years	ha	27,217	19,954.0	45,495.0	1 - 60 years	51,913				
51-100 years	ha	50,471	11,254.0	61,114.0	61 - 100 years	44,204				
over 100 years	ha	5,236	4,189.0	27,786.0	over 100 years	6,292				
Total		82,924	35,398	134,394		102,409				
OcLow										
B & S	ha	199	160.0	238.0	Lownat	261				
1 - 50 years	ha	1,575	1,261.0	5,523.0	1 - 60 years	478				
51-100 years	ha	5,760	1,055.0	6,912.0	61 - 100 years	4,894				
over 100 years	ha	2,703	1,489.0	5,308.0	over 100 years	2,779				
Total	ha	10,237	3,965	17,981	Sub-Total	8,411				
PjMix										
B & S	ha	0	1.0	-1.0	Lownat					
1 - 50 years	ha	34,089	27,272.0	61,741.0	1 - 60 years	25,247				
51-100 years	ha	30,101	12,171.0	36,121.0	61 - 100 years	19,111				
over 100 years	ha	5,628	4,503.0	17,946.0	over 100 years	3,773				
Total	ha	69,818	43,947	115,807	Sub-Total	48,131				
PjPrd										

B & S	ha	127	102.0	152.0	Lownat	280				
1 - 50 years	ha	54,550	43,641.0	99,745.0	1 - 60 years	60,130				
51-100 years	ha	17,050	8,300.0	34,920.0	61 - 100 years	15141				
over 100 years	ha	1,457	1,166.0	9,510.0	over 100 years	1,852				
Total	ha	73,184	53,209	144,327	Sub-Total	77,402				
PoAll										
B & S	ha	134	108.0	160.0	Lownat	977				
1 - 50 years	ha	5,952	4,762.0	18,018.0	1 - 60 years	9,294				
51-100 years	ha	7,986	2,109.0	9,583.0	61 - 100 years	5,624				
over 100 years	ha	1,364	744.0	3,297.0	over 100 years	1,298				
Total	ha	15,436	7,723	31,058	Sub-Total	17,192				
PrwMx										
B & S	ha	0	1.0	-1.0	Lownat					
1 - 50 years	ha	617	494.0	2,102.0	1 - 60 years	809				
51-100 years	ha	869	148.0	1,388.0	61 - 100 years	254				
over 100 years	ha	479	384.0	1,150.0	over 100 years	97				
Total		1,965	1,027	4,639		1,161				
PwDom										
B & S	ha	0	1.0	-1.0	Lownat	4				
1 - 50 years	ha	149	120.0	1,054.0	1 - 60 years	183				
51-100 years	ha	301	25.0	678.0	61 - 100 years	598				
over 100 years	ha	898	577.0	1,164.0	over 100 years	1,235				
Total		1,348	723	2,895		2,020				
SbLow										
B & S	ha	2,122	1,698.0	2,546.0	Lownat	2,727				
1 - 50 years	ha	4,102	3,282.0	22,676.0	1 - 60 years	7,961				
51-100 years	ha	20,289	3,605.0	24,346.0	61 - 100 years	17,085				
over 100 years	ha	15,640	7,713.0	23,499.0	over 100 years	16,130				
Total		42,153	16,298	73,067		43,903				
SbMix										
B & S	ha	19	15.0	22.0	Lownat	83				
1 - 50 years	ha	19,579	12,995.0	25,987.0	1 - 60 years	14,948				
51-100 years	ha	74,910	14,787.0	89,892.0	61 - 100 years	24,226				
over 100 years	ha	10,776	8,621.0	41,057.0	over 100 years	5,609				
Total		105,284	36,418	156,958		44,866				
SbPrd										
B & S	ha	524	420.0	629.0	Lownat	1,768				
1 - 50 years	ha	10,801	8,294.0	14,878.0	1 - 60 years	18,880				
51-100 years	ha	30,653	8,174.0	36,783.0	61 - 100 years	22,644				
over 100 years	ha	4,063	3,251.0	22,888.0	over 100 years	4,681				
Total		46,041	20,139	75,178		47,972				
ShAll										
B & S	ha	635	509.0	762.0	Lownat	866				
1 - 50 years	ha	30,112	18,433.0	37,122.0	1 - 60 years	34,317				
51-100 years	ha	14,816	10,493.0	24,175.0	61 - 100 years	10,216				
over 100 years	ha	4,247	3,398.0	9,709.0	over 100 years	4,393				
Total	ha	49,810	32,833	71,768	Sub-Total	49,792				
Total	ha	557,286				561,065				

2 . Forest Diversity - Forest Composition - Available for Timber Production (includes B&S)(ha at start of each 20-year period)

		2003			2008					
BwDom	ha	2,903	2,323	8,077	3,556					2008 source FMP-13 (BNV values)
CeDry	ha	4,321	3,402	5,185	5,208					2020-4 and 2008 FMP-13 2008 values
MxCon	ha	40,087	30,141	49,239	100,804					
MxHwd	ha	65,072	38,693	78,265	93,740		high			
OcLow	ha	7,818	5,923	9,381	7,548		high			
PjMix	ha	57,913	46,331	78,004	45,841					
PjPrd	ha	66,275	53,021	124,768	74,747					
PoAll	ha	12,495	9,996	21,620	14,921					
PrwMx	ha	1,300	1,041	3,397	1,282					
PwDom	ha	650	521	1,576	1,364					
SbLow	ha	34,487	27,590	41,882	40,107					
SbMix	ha	81,913	38,007	98,295	42,185					
SbPrd	ha	40,146	26,220	48,175	45,435					
ShAll	ha	39,200	31,360	47,039	44,088					
Total Available Land Base		454,580	314,569	614,903	520,826					

3. Forest Diversity - Old Forest Structure (All SU combined .)

		2003	2008	Changes to Old Growth
BwDom	over 110 years	0.6%	11.0%	> 90 years
CeDry	over 140 years	8.5%	36.0%	> 100 years
MxCon	over 120 years	2.5%	3.0%	>120 years
MxHwd	over 100 years	6.3%	6.0%	>100 years
OCLow	over 140 years	3.7%	5.0%	>140 years
PjMix	over 100 years	8.1%	4.0%	>110 years
PjPrd	over 100 years	2.0%	1.0%	>110 years
PoAll	over 100 years	8.9%	8.0%	>140 years
PrwMx	over 150 years	4.2%	21.0%	>130 years
PwDom	over 130 years	36.4%	9.0%	>120 years
SbLow	over 120 years	16.5%	16.0%	>120 years
SbMix	over 120 years	3.1%	3.0%	>120 years
SbPrd	over 120 years	2.9%	3.0%	>120 years
ShAll	over 120 years	2.5%	6.0%	>110 years

FMP-13 (2008) plan start

Onset of Old Growth differed between plans In the 2008 FMP all FU had adequate old growth. All old growth targets are greater was retained in the 2003-08 fmp

4. Wildlife Habitat for Selected Wildlife Species (preferred ha at start of each 20-year period)

		2003	Minimum	2008				
American Kestrel	ha	2,579	2,063					
Spruce Grouse	ha	86,447	61,860					
Great Grey Owl	ha	82,521	55,022	152,100				Not all species were modeled in 2008
Pileated Woodpecker	ha	20,728	13,924	9,400				
Boreal Chickadee	ha	71,686	46,311					All exceeded 2003 minimum levels
Golden-crowned Kinglet	ha	107,431	57,566					The habitat criteria changed between plans
Swainson's Thrush	ha	9,373	60,422					
American Redstart	ha	78,936	40,356					
Connecticut Warbler	ha	37,139	29,712					
Wh.-throated Sparrow	ha	126,585	101,268					
Snowshoe Hare	ha	47,440	37,952					
North. Flying Squirrel	ha	168,265	104,444					
Boreal Red-backed Vole	ha	132,335	70,047					
Marten	ha	184,130	110,036	159,600				
Woodland Caribou	ha	174,911	130,683	345,500				
Woodland Caribou (winter)	ha	26,501	21,201	80,000				
White-tailed Deer (foraging)	ha	65,437	52,350	48,700				
White-tailed Deer (winter)	ha	86,549	51,076					
Moose - foraging	ha	148,610	117,357	159,100				
Moose - winter	ha	270,985	198,529	280,900				
Total		1,928,588						

5. Sustained Wood Supply

		2003	2008	Actual			
Avail. Spruce/Pine/Fir volume	Mm3/yr	725.000	646.300	109.80			2007/08 AR-4
Avail. hardwood volume	Mm3/yr	310.000	273.200	3.90			2008 FMP 13 # 9
Total volume (all species)	Mm3/yr	1,035.000	919.500	113.61			2003 FMP 13

Available Harvest Area (AHA)/year

	Units	2003	2008	Actual 2003			
BwDom	ha	4.9	1.8	4.1			2008 FMP-9
CeDry	ha	0.0	22.0	0.7			2003 FMP-15
MxCon	ha	660.9	1,920.9	532.0			AR 2007/08 AR-1 final sums differ from ar07/08
MxHwd		1,279.3	1,250.3	1,128.6			
OCLow		0.0	0.0	3.4			
PjMix		900.9	779.9	936.6			
PjPrd		564.1	671.9	588.3			
PoAll		297.1	361.9	266.5			
PrwMx		28.2	0.0	2.6			
PwDom		0.0	0.0	0.0			
SbLow		300.0	483.6	210.5			
SbMix		1,015.7	910.2	836.5			
SbPrd		1,045.4	426.6	898.5			
ShAll		400.0	458.0	333.7			
Total Available Land Base		6,496	7,287	5,742			

Silviculture		2003 Target	2003-2008 Actual						2
Total Silviculture Expenditure	M$/yr	3,554.4	1,970.0						2007/08 AR-11 & AR-7& AR 4
Average Silviculture Cost	$/m3	3.4	2.9						FMP 12 (2003-2008)
Total Growing stock	MMm3	60.40	n/a						Did not monitor in MMm3 for actual total growing stock
6. Soil Function		Appropriate forest operations prescriptions (FOP's) will be prepared for all areas allocated for harvest during preparation of the Annual Work Schedules. Area of concern planning will ensure protection of all sensitive ecosite 12 sites through implementation of best management practices. This objective will be equally achieved in all management alternatives.							Pre work documents are used to prescribe conditions where known in sensitive areas and they are identified on an attached map.Operators are aware of such sites.
7. Fisheries and Water Quality		Application of the area of concern planning process during plan development and implementation will ensure the protection of known values equally for all alternatives. On-going communications during plan preparation will allow for the identification and protection of any additional values (sensitive sites, fisheries). Forest management activities, including AOC planning, forest renewal, rehabilitation, monitoring and assessment, should maintain water yield and net primary productivity, within the estimated bounds of natural variation inherent to the Wabigoon Forest.							Procedure followed.
8. Personal and Commercial Use		Allocation to the full available harvest area will enhance the achievement of the personal and commercial use harvest objective. All known demands will be accommodated where operationally feasible during the allocation process. Fibre requests will be honoured equally for all management alternatives.							All requests have been accommodated if the fibre requested is available.
9. Working with Aboriginal Peoples		On-going communications with First Nations communities in the proximity of the Wabigoon Forest will be conducted. AOC planning during plan development & implementation will include protection of identified Native values. Allocation to the full AHA will provide opportunities for Aboriginal forest management operations. Higher initial AHA areas provide greater opportunities in the short term Term 1 (TPPinf and TPP bal, but longer term with SMA and DEMAND)							The 2008 FMP development included extensive aboriginal consultation and included representation on the Wabigoon Planning team. AOC planning was conducted for First Nations values for the 2008 plan.
10. Tourism and Other Commercial Uses		Other resources users will have the opportunity for input during the planning process. All identified non-timber commercial values will be considered during the area of concern planning process, which will allow for the protection of the known values. All forest management activities will be planned and implemented utilizing the area of conern planning process. All existing agreements will honoured, which should avoid any reduction in the quality of tourism experiences from the current status. Input during the allocation processs, and consideration during the area of concern planning process will protect the quality of resource opportunities in the future. Equal implementation for all alternatives.							AOCs are in place to accommodate RBTO and other resource users. Extensive negotiating and meeting interested groups occurred. Most were accommodated for the 2008 preparation however there were some individuals that utilized the conflict resolution procedure in the FMPM.
11. Road Accessed Recreation		Allocation to the full available harvest area will optimize the maintained forest access road system, thereby enhancing road accessed recreation or other usage opportunities. Management alternatives that involve greater annual available harvest areas is generally required a more extensive road system for plan implementation. Recreational opportunities are projected to be slightly more enhanced in the short-term with TPPinf and TPPbal, , but longer term with SMA and DEMAND.							All roads are maintained during operations and monitored throughout the year.
12. Ownership & Other Land Use Values		Application of the area of concern planning process during plan development and implementation will ensure the protection of known values equally for all alternatives. On-going communications during plan preparation will allow for the identification and protection of any additional values (ownership changes or inaccuracies, other land values).							All identified values hae been protected and C&H modeling has been used to identify potential areas.
13. Cultural Heritage Values		Application of the area of concern planning process during plan development and implementation will ensure the protection of known values. On-going communications during plan preparation will allow for the identification and protection of any additional values (sensitive sites, cultural heritage). Forest management activities, including AOC planning, forest renewal, rehabilitation, monitoring and assessment, should maintain the integrity of identified values on the Wabigoon Forest.							Culture and Heritage AOC planning completed on the 2008 FMP. First Nation AOC planning occurred in the 2008 FMP.

Socio-Economic Evaluation	Socio-economic benefit is quantified by the MNR Socio-Economic Impact Model (SEIM). Generally the socio-economic impact positively increases in direct proportion to the quantity of timber harvested. The selected management alternative (SMA) ranks second in the modelfor Term 1 short-term socio economic value , (DEMAND was heighest, follwoed by SMA, then TPPinf and TPPbal). However, when long-term achievement and socio-economic benefits are analyzed, the SMA ranks first overall. A summary of Term 1 results from the Socio-economic Impact Model (SEIM) is included in Table FMP-12e.	Wood harvest during the 2003-08 term was nearly maximized regardless of difficult economic conditions in the forestry sector.

MANAGEMENT UNIT NAME:Wabigoon Forest - 130
PLAN PERIOD: April 1, 2003 TO March 31, 2008
ANNUAL REPORT: April 1, 2007 to March 31, 2008

AR-15 SUMMARY OF FREQUENCY DISTRIBUTION OF FOREST DISTURBANCES BY SIZE CLASS

Size Class (ha)	Frequency of Forest Disturbances						
	Number			Percent			
	Plan Start	Projected Plan End	Actual To Date	Plan Start	Projected Plan End	Actual To Date	Template
< 100	n/a	780	829	n/a	81%	83%	17%
101 - 200	n/a	71	69	n/a	7%	7%	3%
201 - 500	n/a	64	59	n/a	7%	6%	14%
501 - 1000	n/a	29	26	n/a	3%	3%	19%
1001 - 5000	n/a	23	20	n/a	2%	2%	40%
5001 - 10000	n/a	0	1	n/a	0%	0%	6%
> 10000	n/a	0	0	n/a	0%	0%	8%
Total		967	1004		100%	100%	100%

Note: This table is required in the annual report for the last year of a plan.

MANAGEMENT UNIT NAME: Wabigoon Forest- 130
PLAN PERIOD: April 1, 2003 to March 31, 2023
FIVE YEAR PLAN TERM: April 1, 2003 to March 31, 2008
ANNUAL REPORT: April 1, 2007 to March 31, 2008

RPFO-13 COMPARISON OF PROJECTED, ACTUAL AND DESIRED FUTURE FOREST CONDITION FOR THE MANAGED CROWN FOREST AREA AVAILABLE FOR TIMBER PRODUCTION

Forest Unit	Age Class	Stage of Management	Forest Condition (ha)			Desired Future Forest Condition (ha)	
			Start of Term 2003	End of Term 2008 Actual	Projected <2023> (2003 FMP)	Past Term <2063> (2003 FMP)	Current Term <2108> (2008 FMP)
BWD	B & S	Clearcut	61.5		61.5	61.5	239.6
	1-20	Clearcut	272.0	438.2	1,122.7	781.1	1,132.5
	21-40	Clearcut	144.0	181.5	257.5	1,539.8	824.2
	41-60	Clearcut	589.0	589.5	129.9	983.8	881.6
	61-80	Clearcut	1,197.0	1,486.1	548.6	205.9	351.6
	81-100	Clearcut	551.0	633.2	906.6	0.0	65.3
	101-120	Clearcut	78.0	261.5	458.4	39.8	84.8
	121-140	Clearcut	10.0	-	0.0	25.3	36.8
	141-160	Clearcut	0.0	-	9.5	0.0	0.0
	161+	Clearcut	0.0	-	0.0	0.0	0.0
	BWD	Subtotal	2,902.5	3,590.0	3,494.7	3,637.1	3,616.5
CED	B & S	Clearcut	17.5		17.5	17.5	17.6
	1-20	Clearcut	3.0	26.4	830.3	396.6	93.2
	21-40	Clearcut	120.0	7.6	2.8	1,068.0	600.6
	41-60	Clearcut	256.0	86.1	113.6	744.2	99.5
	61-80	Clearcut	818.0	913.6	242.4	47.2	621.9
	81-100	Clearcut	1,730.0	2,364.7	816.7	198.7	201.3
	101-120	Clearcut	624.0	1,082.3	1,597.2	344.9	21.0
	121-140	Clearcut	375.0	448.9	248.6	350.9	95.5
	141-160	Clearcut	172.0	223.2	113.1	373.6	282.5
	161+	Clearcut	206.0	254.1	136.8	194.8	139.4
	CED	Subtotal	4,321.5	5,407.0	4,119.0	3,736.4	2,172.5
CMX	B & S	Clearcut	0.0		0.0	0.0	0.0
	1-20	Clearcut	3,044.0	13,792.4	13,223.2	5,837.4	10,479.7
	21-40	Clearcut	10,011.0	17,095.0	2,881.9	6,651.6	11,380.4
	41-60	Clearcut	7,535.0	18,147.2	9,564.2	12,080.6	12,364.1
	61-80	Clearcut	9,816.0	20,451.7	3,495.8	264.9	12,684.2
	81-100	Clearcut	6,424.0	22,531.8	2,774.5	1,131.6	5,902.3
	101-120	Clearcut	2,468.0	7,785.3	1,553.5	1,721.5	2,413.4
	121-140	Clearcut	747.0	2,196.9	298.1	1,498.5	0.0
	141-160	Clearcut	42.0	147.3	101.5	670.6	0.0
	161+	Clearcut	0.0	127.0	0.0	0.0	0.0
	CMX	Subtotal	40,087.0	102,274.5	33,892.6	29,856.8	55,224.2
HMX	B & S	Clearcut	0.0		0.0	0.0	0.0
	1-20	Clearcut	3,154.0	13,537.4	18,694.0	8,517.3	6,171.8
	21-40	Clearcut	12,885.0	11,145.3	2,986.1	12,109.3	2,728.0
	41-60	Clearcut	18,050.0	25,802.9	12,343.8	15,838.2	4,816.5
	61-80	Clearcut	22,158.0	29,089.3	17,170.6	1,915.0	5,769.4
	81-100	Clearcut	5,246.0	11,478.2	2,508.0	1,172.4	4,723.6
	101-120	Clearcut	2,760.0	4,464.5	521.2	2,673.9	1,517.3
	121-140	Clearcut	741.0	1,344.1	53.6	1,266.4	0.0
	141-160	Clearcut	78.0	54.3	82.4	139.5	0.0
	161+	Clearcut	0.0	-	0.0	0.0	0.0
	HMX	Subtotal	65,072.0	96,916.0	54,359.7	43,632.2	25,726.6
OCL	B & S	Clearcut	199.0		199.0	199.0	260.5
	1-20	Clearcut	360.0	297.6	825.9	1,057.2	1,014.0
	21-40	Clearcut	760.0	46.1	340.8	3,377.5	585.5
	41-60	Clearcut	557.0	325.2	722.8	760.6	497.6
	61-80	Clearcut	1,448.0	1,368.2	619.2	373.8	2,307.3
	81-100	Clearcut	2,615.0	3,225.8	1,424.7	510.8	831.1
	101-120	Clearcut	1,085.0	1,397.5	2,389.0	196.5	53.4
	121-140	Clearcut	575.0	861.9	969.7	211.0	0.0
	141-160	Clearcut	147.0	279.7	524.2	520.8	183.7
	161+	Clearcut	72.0	93.1	98.3	227.9	620.7
	OCL	Subtotal	7,818.0	7,895.1	8,113.7	7,435.1	6,353.7

PJM	B & S	Clearcut	0.0		0.0	0.0	0.0
	1-20	Clearcut	12,961.0	6,813.0	14,066.4	15,360.6	10,159.5
	21-40	Clearcut	15,520.0	13,801.5	12,270.8	14,821.1	13,888.5
	41-60	Clearcut	4,083.0	4,368.7	14,693.6	12,803.8	10,961.6
	61-80	Clearcut	13,852.0	6,770.2	3,912.9	1,067.1	1,402.7
	81-100	Clearcut	8,269.0	11,036.6	6,988.4	1,717.2	765.0
	101-120	Clearcut	2,263.0	2,647.0	1,493.7	1,587.5	0.0
	121-140	Clearcut	953.0	709.6	171.7	1,837.6	0.0
	141-160	Clearcut	12.0	43.6	105.3	335.8	0.0
	161+	Clearcut	0.0	12.3	0.0	48.4	0.0
	PJM	Subtotal	57,913.0	46,202.7	53,702.8	49,579.1	37,177.3
PJP	B & S	Clearcut	127.3		127.3	127.3	279.7
	1-20	Clearcut	35,152.0	34,471.4	25,205.1	39,372.1	47,268.9
	21-40	Clearcut	15,198.0	21,614.9	33,280.2	22,751.1	45,958.4
	41-60	Clearcut	2,261.0	3,699.5	14,388.7	22,592.3	40,596.3
	61-80	Clearcut	6,904.0	5,860.9	1,588.3	5,084.9	3,389.5
	81-100	Clearcut	5,873.0	8,010.0	1,139.5	371.6	718.8
	101-120	Clearcut	652.0	1,305.2	397.3	285.8	21.7
	121-140	Clearcut	108.0	140.2	106.3	698.9	769.6
	141-160	Clearcut	0.0	-	19.4	144.7	326.8
	161+	Clearcut	0.0	-	0.0	0.0	0.0
	PJP	Subtotal	66,275.3	75,102.2	76,252.2	91,428.6	139,329.8
POA	B & S	Clearcut	133.8		133.8	133.8	977.1
	1-20	Clearcut	2,483.0	5,241.8	10,941.6	9,665.5	7,556.9
	21-40	Clearcut	1,785.0	1,479.5	2,350.8	9,723.5	5,515.7
	41-60	Clearcut	2,039.0	2,775.8	1,690.5	5,431.5	3,214.5
	61-80	Clearcut	3,742.0	3,368.3	1,940.3	413.1	1,794.3
	81-100	Clearcut	1,408.0	1,647.9	1,773.9	102.3	337.6
	101-120	Clearcut	633.0	966.4	41.5	128.2	416.8
	121-140	Clearcut	267.0	181.8	3.8	102.7	90.7
	141-160	Clearcut	4.0	24.5	12.6	13.0	143.1
	161+	Clearcut	0.0	-	0.0	1.7	0.0
	POA	Subtotal	12,494.8	15,686.1	18,888.7	25,715.2	20,046.7
PR1	B & S	Clearcut	0.0		0.0	0.0	3.6
	1-20	Clearcut	570.0	718.8	700.6	727.6	1,537.5
	21-40	Clearcut	30.0	79.5	539.6	770.1	1,242.9
	41-60	Clearcut	49.0	14.4	9.5	410.5	548.4
	61-80	Clearcut	210.0	99.7	1.4	409.6	0.0
	81-100	Clearcut	265.0	123.6	141.5	1.5	0.0
	101-120	Clearcut	151.0	207.2	25.1	1.6	56.5
	121-140	Clearcut	10.0	20.4	35.3	126.2	60.5
	141-160	Clearcut	2.0	-	4.7	22.5	11.0
	161+	Clearcut	13.0	18.4	7.7	4.3	312.2
	PR1	Subtotal	1,300.0	1,281.9	1,465.5	2,473.9	3,772.5
PRW	B & S	Clearcut	0.0		0.0	0.0	0.0
	1-20	Clearcut	128.0	135.1	582.2	895.0	558.0
	21-40	Clearcut	0.0	-	121.3	842.9	490.7
	41-60	Clearcut	0.0	48.1	0.5	192.9	400.9
	61-80	Clearcut	19.0	144.2	0.0	49.2	380.9
	81-100	Clearcut	128.0	284.4	18.7	5.5	398.3
	101-120	Clearcut	210.0	487.2	125.0	5.2	103.0
	121-140	Clearcut	101.0	197.5	215.1	7.1	0.7
	141-160	Clearcut	19.0	60.2	97.5	13.9	36.6
	161+	Clearcut	45.0	59.7	37.5	62.9	778.1
	PRW	Subtotal	650.0	1,416.2	1,197.9	2,074.6	3,147.1
SBL	B & S	Clearcut	2,122.3		2,122.3	2,122.3	2,727.6
	1-20	Clearcut	1,183.0	5,504.3	7,590.4	6,237.1	4,130.2
	21-40	Clearcut	1,277.0	1,476.9	1,120.0	8,845.1	3,418.2
	41-60	Clearcut	2,190.0	3,188.0	1,209.0	6,803.5	4,852.5
	61-80	Clearcut	6,540.0	5,503.6	2,073.4	1,003.9	8,215.4
	81-100	Clearcut	8,985.0	10,646.9	7,440.2	1,842.5	8,497.3
	101-120	Clearcut	7,042.0	8,919.3	5,305.8	1,404.9	1,090.8
	121-140	Clearcut	3,484.0	4,356.1	3,001.1	1,094.5	392.5
	141-160	Clearcut	1,237.0	1,752.7	2,527.7	1,247.3	161.3
	161+	Clearcut	427.0	368.4	997.5	1,394.1	3,130.8
	SBL	Subtotal	34,487.3	41,716.0	33,387.4	31,995.1	36,616.6
SBM	B & S	Clearcut	18.7		18.7	18.7	82.5

	1-20	Clearcut	4,714.0	4,104.7	13,694.2	9,380.5	11,628.3
	21-40	Clearcut	5,436.0	2,651.4	4,463.0	16,052.8	10,976.0
	41-60	Clearcut	17,219.0	7,694.9	5,146.5	11,107.9	9,104.4
	61-80	Clearcut	26,819.0	8,810.4	17,963.4	1,091.0	14,465.5
	81-100	Clearcut	20,351.0	14,182.5	26,648.5	2,923.8	1,791.9
	101-120	Clearcut	5,396.0	3,912.1	6,847.7	6,435.5	0.0
	121-140	Clearcut	1,597.0	908.8	2,046.8	4,743.5	0.0
	141-160	Clearcut	223.0	198.7	913.2	2,341.0	0.0
	161+	Clearcut	139.0	99.9	159.5	360.5	985.3
	SBM	**Subtotal**	**81,912.7**	**42,563.5**	**77,901.6**	**54,455.2**	**49,033.9**
SBP	B & S	Clearcut	524.4		524.4	524.4	1,767.5
	1-20	Clearcut	7,496.0	14,486.4	23,862.5	15,236.2	8,312.8
	21-40	Clearcut	1,015.0	1,113.7	7,096.8	12,898.5	7,336.0
	41-60	Clearcut	4,631.0	4,419.9	961.0	12,547.0	4,379.7
	61-80	Clearcut	11,319.0	7,885.1	2,926.6	3,263.7	8,352.9
	81-100	Clearcut	11,692.0	13,495.5	3,152.2	3,694.6	4,555.1
	101-120	Clearcut	2,361.0	3,214.2	2,992.7	2,632.2	1,404.5
	121-140	Clearcut	948.0	911.3	648.3	2,045.5	0.0
	141-160	Clearcut	136.0	290.8	299.9	1,273.2	0.0
	161+	Clearcut	24.0	29.2	5.1	229.0	2,033.7
	SBP	**Subtotal**	**40,146.4**	**45,846.1**	**42,469.5**	**54,344.3**	**38,142.3**
SHA	B & S	Clearcut	635.1		635.1	635.1	866.5
	1-20	Clearcut	5,226.7	6,010.4	10,324.4	13,737.4	9,944.1
	21-40	Clearcut	17,830.1	21,148.0	4,948.4	13,127.4	14,093.4
	41-60	Clearcut	3,478.0	5,170.2	16,955.0	6,390.5	7,594.7
	61-80	Clearcut	5,484.0	4,726.2	1,580.7	416.3	750.3
	81-100	Clearcut	4,198.0	4,399.9	1,441.5	1,075.9	0.0
	101-120	Clearcut	1,911.0	2,270.2	889.9	716.9	0.0
	121-140	Clearcut	421.0	934.6	1,734.9	891.7	1,808.5
	141-160	Clearcut	14.0	136.0	239.1	339.3	1,839.3
	161+	Clearcut	2.0	-	2.7	67.6	1,969.9
	SHA	**Subtotal**	**39,199.9**	**44,795.7**	**38,751.7**	**37,468.3**	**38,866.6**
		Total	454,580.4	530,693.0	447,997.0	437,831.7	459,226.2

From 2008 FMP
Table FMP-4.
no B&S category

From SFMM available
land base beginning of
Term 11 (2108).

LOWNAT included in 1 LOWNAT considered non-forest in SFMM (not available forest),
but was added as a separate line anyway because is available in FRI (LOWNAT total 7,222 ha).

MANAGEMENT UNIT NAME: Wabigoon Forest- 130
PLAN PERIOD: April 1, 2003 to March 31, 2023
FIVE YEAR PLAN TERM: April 1, 2003 to March 31, 2008
ANNUAL REPORT: April 1, 2007 to March 31, 2008

RPFO-14 SUMMARY REPORT OF MANAGED FOREST AREA AVAILABLE FOR TIMBER PRODUCTION

Plan Term	Production Forest Available for Timber Production (ha)													
	1998		2003		2008		2013		Year 20		Year 40	Year 60	Year 80	Year 100
	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Predicted	Predicted	Predicted
1998-2003		**461,058**	N/A	N/A	501,854	520,826	N/A	N/A	500,290	N/A	488,526	476,785	476,837	476,888
2003-2008				**454,580**	N/A	N/A	450,426	N/A	447,997	N/A	442,403	437,832	433,827	435,420
2008-2018					N/A	**520,826**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A Data not available.
FMP-11 (1998FMP)
FMP-11 (2003 FMP), with projected 2013 area from SFMM model (plus B&S)
FMP-4 (2008 FMP)
2008 FMP projections are N/A since this is only the 2008 RPFO and does not require projections for the 2008-2018 period.

MANAGEMENT UNIT NAME: Wabigoon Forest- 130
PLAN PERIOD: April 1, 2003 to March 31, 2023
FIVE YEAR PLAN TERM: April 1, 2003 to March 31, 2008
ANNUAL REPORT: April 1, 2007 to March 31, 2008

RPFO-15 SUMMARY REPORT OF (LANDSCAPE PATTERN OR) FOREST DIVERSITY INDICES

Plan Term	Acceptable Levels			Forest or Landscape Diversity Index														
				1998		2003		2008		2013		<Year 20>		<Year 40>	<Year 60>	<Year 80>	<Year 100>
	Index	From	To	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Predicted	Predicted	Predicted
1998-2003	**Forest Heterogeneity:**																
	Shannon-Weiner (by FU)				1.966	N/A	2.244	1.960	2.218	N/A		1.959		1.931	1.916	1.883	1.889
	Simpson (by FU)				0.827	N/A	0.879	0.826	0.873	N/A		0.825		0.817	0.814	0.810	0.812
	Shannon-Weiner (age class)				2.560	N/A	2.520	2.527	2.535	N/A		2.530		2.522	2.477	2.464	2.463
	Simpson (by age class)				0.911	N/A	0.910	0.909	0.912	N/A		0.909		0.905	0.901	0.902	0.903
	Shannon-Weiner (wildlife hab)				1.874	N/A	2.033	1.871	1.544	N/A		1.863		1.825	1.806	1.773	1.772
	Simpson (wildlife habitat)				0.821	N/A	0.825	0.820	0.733	N/A		0.818		0.809	0.806	0.800	0.800
	Forest Eveness:																
	Shannon (by FU)				0.791	N/A	0.850	0.789	0.840	N/A		0.788		0.777	0.771	0.758	0.760
	Shannon (by age class)				0.828	N/A	0.815	0.817	0.833	N/A		0.818		0.804	0.770	0.756	0.747
	Shannon (wildlife habitat)				0.692	N/A	0.751	0.691	0.703	N/A		0.688		0.674	0.667	0.655	0.654
2003-2008	**Forest Heterogeneity:**																
	Shannon-Weiner (by FU)						2.244	N/A	2.218	2.257		2.268		2.289	2.292	2.286	2.266
	Simpson (by FU)						0.879	N/A	0.873	0.881		0.882		0.886	0.885	0.883	0.878
	Shannon-Weiner (age class)						2.520	N/A	2.535	2.537		2.581		2.597	2.591	2.582	2.579
	Simpson (by age class)						0.910	N/A	0.912	0.911		0.914		0.913	0.911	0.910	0.910
	Shannon-Weiner (wildlife hab)						2.033	N/A	1.544	2.036		2.040		2.047	2.048	2.043	2.039
	Simpson (wildlife habitat)						0.825	N/A	0.733	0.825		0.826		0.827	0.827	0.824	0.822
	Forest Eveness:																
	Shannon (by FU)						0.850	N/A	0.840	0.855		0.859		0.867	0.869	0.866	0.859
	Shannon (by age class)						0.815	N/A	0.833	0.869		0.823		0.817	0.815	0.802	0.792
	Shannon (wildlife habitat)						0.751	N/A	0.703	0.752		0.753		0.756	0.756	0.755	0.753

N/A Not Available

Data From SFMM outputs 1998 FMP w_alt5.cas, 2003 FMP SMA97.cas and 2008 FMP Wab 106-PMS.cas.

Note while data was available from archived SFMM files, the indices noted above were only used for te 1998 FMP, with other indices used for the 2003 FMP, and standards indicators of forest sustainability (FMPM 2004) used for the 2008 FMP.

MANAGEMENT UNIT NAME: Wabigoon Forest
PLAN PERIOD: April 1, 2003 to March 31, 2023
FIVE YEAR PLAN TERM: April 1, 2003 to March 31, 2008
ANNUAL REPORT: April 1, 2007 to March 31, 2008

RPFO-16 SUMMARY REPORT OF HABITAT FOR SELECTED WILDLIFE SPECIES

Plan Term	Selected Wildlife Species	Area of Habitat Available (km^2)													
		2003		2008		2013		2018		2028		2048	2068	2088	2108
		Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Predicted	Predicted	Predicted		
2003-2008	American Kestrel		0.26			0.72				0.75		0.55	0.54	0.53	0.39
	Spruce Grouse		8.64			8.4				9.29		9.62	8.21	9.63	10.87
(SFMM	Great Grey Owl		8.25			7.62				5.86		5.58	5.53	5.5	5.75
SMA97)	Pileated Woodpecker		2.07			1.95				2.06		2.17	2.05	1.45	1.39
	Boreal Chickadee		7.17			6.84				6.6		5.91	4.69	4.65	4.83
	Golden-crowned Kinglet		10.74			9.91				7.78		7.04	6.29	6.14	6.2
	Swainson's Thrush		9.37			8.07				7.81		8.16	7.81	7.25	6.95
	American Redstart		7.89			6.56				6.04		6.11	5.95	6.18	5.85
	Connecticut Warbler		3.71			3.89				4.27		4.27	4.1	4.06	4.15
	Wh.-throated Sparrow		12.66			16.11				18.53		19.23	20.32	17.4	16.81
	Snowshoe Hare		4.74			5.9				7.17		7.94	7.28	4.89	4.6
	North. Flying Squirrel		16.83			15.5				12.12		11.3	10.61	10.44	10.44
	Boreal Red-backed Vole		13.23			12.54				9.69		8.82	7.76	7.38	7.8
	Marten		18.41			17.04				13.18		12.16	11.25	11.03	11.32
	Woodland Caribou		17.49			16.99				17.19		17.78	17	18.25	18.94
	Woodland Caribou (winter)		2.65			2.53				3.31		3.03	2.25	2.22	1.98
	White-tailed Deer (foraging)		6.54			8.4				9.56		9.97	9.46	7.08	6.56
	White-tailed Deer (winter)		8.65			8.38				7.93		7.76	6.59	5.3	5.2
	Moose - foraging		14.86			14.77				14.38		14.22	14.94	14.36	13.63
	Moose - winter		27.1			25.12				25.57		26.01	25.21	25.75	26.53
2008-2018	Black-backed Woodpecker				16.58			13.54		12.19		12.34	12.28	12.09	12.17
	Black Bear - foraging				12.53			10.7		11.42		11.18	10.87	11.23	11.19
(SFMM	Caribou - winter *				8			6.3		5.62		6.61	6.49	5.18	5.16
106-PMS)	Caribou *				34.55			31.12		29.64		31.88	32.95	32.47	33.46
	Lynx - denning				10.54			8.95		9.39		9.1	9.18	10	9.89
	Great Grey Owl				15.21			12.28		10.99		11.04	10.99	10.99	10.99
	Marten				15.96			13.05		11.74		11.6	11.54	11.54	11.68
	Moose				15.91			17.56		17.67		15.73	15.95	16.28	15.12
	Moose - winter				28.09			24.82		23.54		26.22	27.07	27.02	27.76
	Pileated Woodpecker				0.94			0.83		1.21		1.17	0.82	0.58	0.55
	White-tailed Deer - winter				4.87			4.65		4.09		2.59	1.96	2.07	2.02

*Caribou - winter and caribou - refugia are regionally selected species, but are not indicators of forest sustainability or objective acheivement. Habitat for caribou is not managed on the Wabigoon Forest

Note 1: information for the 1998-2003 plan term from existing RPFO-16

Note 2: information for the 2003-2008 plan term extracted from the 2008 FMP-8 for actual values at year 5

MANAGEMENT UNIT NAME: Wabigoon Forest- 130
PLAN PERIOD: April 1, 2003 to March 31, 2023
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ANNUAL REPORT: April 1, 2007 to March 31, 2008

RPFO-17 SUMMARY REPORT OF LANDSCAPE PROCESSES

Plan Term	Net Primary Productivity ($kg\ C\ ha^{-1}\ day^{-1}$)			Water Yield ($mm\ ha^{-1}\ day^{-1}$)		
	Sub-Regional Acceptable Levels		Sub-Regional Actual	Watershed Value	% Contributed by MU	% Change from previous plan
	From	To				
1998-2003	N/A	N/A	4,612 kgC/ha/year	N/A	N/A	N/A
2003-2008	N/A	N/A	3,895 kgC/ha/year	N/A	N/A	N/A

* NPP value reported in 1998 FMP was 696.7 gC/m2/year (1994 data). However, due to changes in the methodology and precision of measured data, the equivalent value for the beginning of the previous FMP (1997) is 4,612 kgC/ha/year. It was this (more accu

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Water yield was measured in second-order watershed area disturbed in the previous 10 years as a percentage of the total productive forest area. Area disturbed in second-order watersheds in the 1988-1998 period (start of 1998 FMP) was 214.9 km2, or 6.4 pe

This measure was not measured at the start of the 2008 FMP (end of 2003-2008 FMP term).

MANAGEMENT UNIT NAME: Wabigoon Forest- 130
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RPFO-18 SUMMARY REPORT OF SELECTED MEASURABLE INDICATORS OF FOREST SUSTAINABILITY CRITERIA

Measurable Indicator		Indicator Values By Plan Term					
		1998-2003	2003-2008	2008-2018	<year> to <year>	<year> to <year>	<year> to <year>
Total Productive Crown Forest (ha)							
(by forest unit)	BwDom	n/a	3,603	3,729			
	CeDry		6,212	5,827			
	MxCon		49,191	107,994			
	MxHwd		82,924	102,409			
	OCLow		10,038	8,151			
	PjMix		69,818	48,128			
	PjPrd		73,057	77,122			
	PoAll		15,302	16,215			
	PrwMx		1,965	1,396			
	PwDom		1,348	2,016			
	SbLow		40,031	41,175			
	SbMix		105,265	44,784			
	SbPrd		45,517	46,205			
	ShAll		49,175	48,925			
	TOTAL		553,446	554,076			
% of Available Harvest Area actually utilized Trend analysis		75%	90%				
Ratio of area of riparian reserve to length of shoreline adjacent to timber harvest activity		N/A	N/A	N/A			
% of Native communities in or adjacent to the management unit which are involved in the special Native consultation option		0%	0%	0%			
% of forecasted silvicultural budget requirement actually received							
Value added (millions $)		nnn	nnn	nnn			
Local citizens committee self-evaluation of their effectiveness (1-10)		N/A	N/A	8			